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OF  
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FEBRUARY 5TH, 1872.

DR. R. S. CHARNOCK, *Vice-President, in the Chair.*

THE minutes of the last ordinary meeting were read and confirmed.

W. J. JEAFFRESON, Esq., M.A., of Clifton Gardens, Folkestone, was elected a Member. H. H. HOWORTH, Esq., M.A., was elected a Local Secretary for South Lancashire.

The following presents were announced, and the thanks of the meeting voted to the respective donors:—

FOR THE LIBRARY.

From JAMES BURNS, Esq.—Human Nature for January and February, 1872.

From the AUTHOR.—The Food Journal for January and February, 1872.

From MESSRS. CASSELL, PETER, and GALPIN.—Illustrated Album for 1871.

From the WAR DEPARTMENT, U.S.—Report of Surgical Cases in the United States Army, Circular No. 3, 1871.

From the SOCIETY.—Proceedings of the Kilkenny and South-East of Ireland Archæological Society, No. 58.

From the AUTHOR.—Ueber die Methode der Vorgeschichtlichen Forschung, by Professor H. Schaaffhausen.

From the EDITOR.—La Revue Scientifique for January, 1872.

From the SOCIETY.—Bulletin de la Société d'Anthropologie de Paris, June and July, 1870.

From the EDITOR.—The Mining Magazine and Review, No. 1, January, 1872.

From the SOCIETY.—Archives of Science and Transactions of the Orleans County Society of Natural Science, 3 Nos., vol. i.

From the MUSEUM.—Annual Report of the Trustees of the Museum of Comparative Zoology at Harvard College, U.S., for 1870.

- From the ASSOCIATION.—Proceedings of the Geologists' Association, No. 3, vol. ii.
- From the AUTHOR.—Ancient Earth Forts of the Cuyahoga Valley, Ohio; on the Weapons and Military Character of the Race of the Mounds; Ancient Mining on the Shores of Lake Superior, by Colonel Charles Whittlesey.
- From the SOCIETY.—Proceedings of the Asiatic Society of Bengal, Nos. 9, 10, 11; Journal ditto, Part i, No. 11. Part ii, No. 3.
- From the SOCIETY.—Mittheilungen der Anthropologischen Gesellschaft in Wien, Nos. 12, 13, and 14.
- From the SOCIETY.—Jahrbuch der K. K. Geologischen Reichsanstalt, July, August, and September, 1871; Verhandlungen, ditto, No. 11, 1871.
- From Professor A. ECKER.—Archiv für Anthropologie, 1871.
- From the EDITOR.—Correspondenz-Blatt der Deutschen Gesellschaft für Anthro. Ethno. und Urgeschichte, No. 1, 1872.
- From the SOCIETY.—Schriften der Königlichen Physikalisch-ökonomischen Gesellschaft zu Königsberg, 2 Nos., 1870.
- From the EDITOR.—Nature, to date.

Lieut.-Colonel GEORGE GRANT FRANCIS, F.S.A., exhibited a series of Bone, Flint and other Stone Implements from Paviland, Gower; and contributed the following remarks thereon, which were read by the Director.

*Stone Implements, etc., from Paviland, Gower.*—Specimens of flint and other stone implements more or less perfect:—Bone implements; human bones; concreted portions of the cave deposit, Samian ware, a fragment of which last was found with a third brass of Constantinus, *above* the floor of stalagmite.

The bones and implements were all found intermixed *beneath* an irregular thick floor of stalagmite in a stiff redish loamy soil, from which they were carefully cleansed by myself at Swansea, and soaked in liquid gelatine to prevent exfoliation, and indeed entire destruction, and many of them have since been dipped in boiled oil with the same intention.

Dr. Buckland has particularly distinguished the Cave of Paviland in his "*Reliquiæ Diluvianæ*,"\* and "the Gower Caves" form an interesting chapter in the palæontological Memoirs of Dr. H. Falconer.†

The former could not and the latter author did not give Mr. Gwyn Jeffreys and myself any credit for the discovery and preservation of these valuable relics of a bygone period. They were excavated by us in the autumn of 1835, and having been placed in the Swansea Museum, are noticed in the "*Institution Reports*" (copies in library of Society of Antiquaries) for 1835 and 1836, and were labelled in the usual way.

\* 4to. 1823. Pp. 82, 164, 167.

† Roy. 8vo 18—. Pp. 521, 538.

The following is the extract from the *Memoirs* relating to the find:—"In May, 1862, Lieutenant-Colonel Wood and myself (Dr. Falconer) had found numerous wrought flints and some bone weapons in Paviland, but the deposits there had been so disturbed by previous excavations of an old date that none of the instances were free from the taint of suspicious occurrence."

If the learned palæontologist or his friends had made a proper search in the Swansea Museum (to which he makes frequent reference) he would have found the collection now forwarded with the names of the finders, and reference to Mr. Jeffreys or myself would have placed the question of disturbance on its true basis, viz., that the flints, &c., found in "1860" were the rejected of our work in 1835.

#### DISCUSSION.

Mr. HUGHES said that, although there might be quite sufficient evidence of the agency of man in the manner of occurrence of the flints exhibited, as it would be shown that they occurred in the cave under such circumstances that they could not have been selected and carried to the position in which they were found by the ordinary operations of nature, still he would point out that there was no evidence of human workmanship on the specimens themselves, all the forms being such as commonly resulted from the natural fracture of flint, which, however, when found serviceable, were selected, and often imitated by man.

The following paper was read :

*On the HEREDITARY TRANSMISSION of ENDOWMENTS and QUALITIES of DIFFERENT KINDS.* By GEORGE HARRIS, Esq., F.S.A., Vice-President of the Anthropological Institute.

It is my desire on the present occasion to institute an inquiry, and to call attention to the mode of transmission in various ways, not only of actual talent or genius, the hereditary descent of which has been discussed in a very able and interesting work by Mr. Galton,\* but also of endowments and qualities of different kinds, physical and moral as well as intellectual, and the observation of each of which appears to me calculated to throw light on the other. Mr. Galton's work is especially valuable as regards the mass of well-authenticated facts which he has brought together, however we may differ from some of the conclusions at which he has arrived. It is my intention, however, in the present paper not so much to follow Mr. Galton in his track as to take up the subject where he has left off, and to attempt to effect researches beyond the line to which he has limited his inquiries.

\* "Hereditary Genius : an Inquiry into its Laws and Consequences. By Francis Galton, F.R.S., etc. London : Macmillan and Co.

Of the fact of the actual transmission of endowments and qualities of various kinds from parent to offspring, few will entertain any doubt, whatever doubts may be felt as to the mode of the transmission, and the extent to which this is effected. The question then arises from which of the parents are these characteristics mainly derived, from the father, from the mother, or from both parents? And are particular endowments and qualities inherited principally from different parents? In several remarkable cases the derivation of intellectual talent has been traced to the mother; but in other cases it has been clearly from the father that the faculties in question were transmitted. In a great many instances—the majority, I believe—it will be found that the endowments and qualities of both the parents have been transmitted to the children, although in different proportions, to various members of the family. In several cases it has been observed that persons inherit remarkable qualities, intellectual and moral as well as physical, from the grandparents instead of the parents. In the case of disease this principle has long been recognised. And may not the hereditary descent of diseases, which has for some time been carefully observed, afford us a guide to trace out the mode of the descent of intellectual and moral endowments and qualities, which has escaped, or at any rate has not secured, a corresponding amount of observation?

It is obvious, however, that endowments and qualities of different kinds do not by any means always directly and lineally descend. As the offspring are in each case derived not from one only, but from two parents, something may be supposed to be derived from each, which will of course be more or less modified by the character of both parents. In addition to this, endowments and qualities of each kind appear to be transmitted in various ways. In some few cases a particular talent or quality descends direct from one of the parents to one of the offspring without undergoing any change. In other cases the talent or quality is so transmitted, but an entirely new direction is given to it by the new possessor, as when the son of a great painter comes out as a poet, or the son of a distinguished mathematician is eminent as a lawyer.

One very remarkable peculiarity about the descent of both endowments and qualities, and also physical peculiarities as well, of which I could adduce some striking instances, is the case where the qualities of both the parents are as it were split and divided among the offspring, one child inheriting one quality, another child another quality, of one or other of its parents. Thus, one child will possess the taste, another the originality, another the acuteness, of one or other of the parents, while he will be wanting in the other capacities peculiarly exhibited by

them. So also, as regards the moral qualities and dispositions of the parents, it may be observed that these are also occasionally in a corresponding manner as it were split and distributed singly among the different members of the family. For instance, one child may be remarkable for the energy, another for the courage, another for the honesty, another for the benevolence, which peculiarly characterised one or other of the parents, while he did not possess to any large extent any of the other qualities. The same may be observed with regard to the transmission of deficiencies from the parents to the children. Professor de Quatrefages, in his valuable work on the progress of anthropology, has pointed out something analogous to this in the case of animals of cross-breeds, some of whose progeny will exhibit the breed of one parent, some that of the other. Indeed, in many respects and in various ways, but particularly as regards the transmission of qualities from parent to offspring, the study of natural history is calculated to throw much light upon the study of man. Botany, too, may be made serviceable in this respect.

As regards the descent of physical qualities of different kinds, this is far easier to trace than is the transmission of those which are intellectual and moral. Any person is capable of perceiving the likeness of a child to one of its parents, and the disposition of particular children to particular diseases of one or other of the parents is also perceptible. The latter is especially the case with regard to insanity. It is also well known that diseases in their transmission will miss a generation and re-appear in the grandchildren. This mode of the descent of physical qualities which are perceptible, may afford us an insight into the theory of the transmission of those which are intellectual and moral, and which are not obvious to any but very attentive observers.

The fact indeed of the resemblance of a person to an ancestor, whether parent, grandparent, or more remote relation, may afford a correct insight as to the hereditary transmission of qualities. I have known two instances of persons bearing a striking resemblance to very remote ancestors, whose portraits were well known. In other cases a near resemblance may be perceived to collateral relations, uncles, aunts, great uncles, great aunts, and cousins. May we not suppose that endowments and qualities of different kinds manifest themselves among the different descendants and other relations of a person possessing a remarkable talent or disposition to a great extent? In the case of animals of a cross-breed the tokens of the mixture will appear in very remote generations, when by subsequent breedings it might be supposed all trace of the original cross would have been lost. In the case of man, where a marriage with one of quite a different blood—a mulatto, for instance—has taken place, a com-

paratively remote descendant will occasionally exhibit a striking resemblance to his mulatto ancestor, although the intermediate ancestors exhibited no strong traces of this relationship. In this instance, moreover, some or one only of the children of the particular family will be marked in the way alluded to, while the others will be without any traces of this description.

The colour of the hair affords also a striking indication of the mode in which qualities descend from parents to children; one child will have hair of the colour of that of the father, another of that of the mother, while the hair of the other children will resemble in colour that of one of the grandparents, great grandparents, uncles, or aunts. In some instances no resemblance to the hair of any of his relations is perceptible. In a manner closely analogous may be the transmission of endowments and qualities in general, whether physical, moral, or intellectual.

It may not unreasonably also be supposed that the particular physical, moral, and mental condition of the parents at the time of procreation may have extensive influence on the character of the children, and may account for the extensive diversity among children of the same family. So events happening at the time of the conception of the child and the particular pursuits of the parents may have great influence on the character of the children. Also the comparative age of the parents may have its effect in this respect, high-spirited children springing from parents who were young and vigorous, children grave and sedate from elderly parents.

In the breeding of certain animals great care and skill are exercised in so uniting particular qualities that the offspring may be endowed with those of the most valuable kind. May there not be certain mental and moral qualities in the human race which, when they are possessed by the parents, may lead to the production of offspring in whom are united a class of qualities most valuable to be found together? Indeed, most of the value of many endowments depends on their coexistence in the same mind.

Another inquiry of much interest, and no less importance, is as to whether artificial acquirements as well as those which are natural, can be, or ever are, transmitted by parents to their offspring. Many facts have been cited to prove, especially in the case of animals,\* that they can be, and frequently are.

The most extraordinary circumstance, however, connected with the hereditary transmission of endowments and qualities of different kinds, and the most difficult to afford any satisfactory explanation of, is the case which not unfrequently presents itself of a direct contrariety being observable between the cha-

\* "Intelligence and Perfectibility of Animals", by Leroy.

character of one or both of the parents and that of one or more of the children, not only moral but intellectual. We sometimes observe that robust children have sprung from weak parents, and occasionally, when both the parents are above the common stature, some or all of the children will be considerably below it. The same contrariety is also presented with regard to moral and intellectual disposition and capacity. Thus parents remarkable for their piety and probity occasionally produce children some of whom are as remarkable for their impiety and dishonesty. It has been urged that a neglected or injudicious education may be the main cause of the failing alluded to. But in these cases there has been evidence not only of the bad conduct, but the decidedly bad disposition of the child, directly contrary to that of the parent. And in cases where every effort has been made by education and moral training to counteract the evil disposition, the same conduct has been evinced. Besides this, where all the members of the family have received the same training, some of them only have gone wrong.

The case of the virtuous children of parents who are thoroughly vicious and ill-disposed is still more remarkable. In these instances education and example have done all in their power to corrupt the minds of the offspring, and to render them as degraded as those of their parents. Good disposition and industry and inclination to virtue have nevertheless manifested themselves, and have overcome all the obstacles which bad training presented; and the children have grown up to be as great a benefit to society as the parents were a bane. The only influence upon the children at all calculated to be beneficial, but which is wholly insufficient to account for the contrariety in disposition pointed out, is the disgrace and ruin which the ill-conduct of their parents brought upon them and their families.

But the occasional instances of contrariety in intellectual as well as in moral character between parents and children are not less remarkable. It has long been a matter of observation that the son of a man of genius is frequently below par in point of capacity. And perhaps quite as often the man who is below par produces a son who is a decided genius. In the majority of instances, indeed, distinguished men will be found to have sprung from parents who were only of average capacity. In these cases it may be said, as already observed, that they inherited their talent from some gifted ancestor. Be this as it may, what I now wish to remark upon is the striking and undoubted fact that a direct contrariety as regards their comparative amount of intelligence and capacity is frequently exhibited between parents and children. Further than this, there is very often to be observed a corresponding contrariety not merely as regards the amount of

capacity possessed by the parents and children respectively, but as regards the peculiar quality of it. Thus the sons of a man of exquisite taste will evince no turn of mind of that kind, but will show a capacity for mathematics. And the children of a great mathematician will be wanting in this respect, but possess tastes the most refined. How are all these direct and sudden contrarieties, physical and moral as well as intellectual, to be accounted for?

It appears to me that the only true and philosophical mode of explaining the peculiarly interesting phenomenon in question is by resorting to the supposition that there may be existent in our constitution certain operations and influences analogous to or corresponding with those of tide or reflux, exhaustion and repletion, action and reaction, wearing out and revivifying, in the natural world, ever in process as regards the origination, development, and growth of our moral and intellectual qualities and endowments as well as in the properties of our physical frames, which possess a never-failing influence as regards the transmission of these qualities, and their manifestation in the offspring in the various ways which I have endeavoured to point out. Thus a particular moral or mental endowment may go on growing for generations until it reaches its climax, when it will at once decline.

Subjects of this kind must possess a deep interest for every philosophical inquirer, although unfortunately, mortifying as may be the confession, more especially as regards the highest of them, speculation is the utmost that we can effect in our efforts to unravel the mystery. By some scientific men, indeed, speculation is condemned as unsatisfactory in its results and unscientific in its mode of proceeding. But to condemn speculation is to condemn the greatest and most ingenious philosophers to whom science is indebted, and in not a few instances the more uncertain and apparently wild were their speculations the richer and more solid have been the fruits which those speculations ultimately produced. To condemn speculation in philosophy is to censure alike Des Cartes, and Hobbes, and Behmen, and Newton, and Locke, and in truth nearly all the originators of everything that is most valuable in science, physical, moral, or intellectual. To forbid speculation is to take away the scaffolding by means of which the rising edifice is erected, and at once to put an end to instead of accomplishing its completion.

#### DISCUSSION.

Dr. COLLYER remarked that he had seen on the western coast of Mexico, in the state of Jalisco, whole tribes of men whose bodies were spotted, known as "*los Pintos*." These were Indians, with the

brownish red skin, on which were indigo-coloured spots of various sizes, from that of a sixpenny piece to that of half-a-crown. General Alvares, himself an educated Indian, informed him that these spotted people had a tradition that it arose from the period of a volcanic eruption some five hundred years since, he supposed on the principle of *mental impression* of the mother, or vital photography, being conveyed to the body of the child. There were also—which deserved serious consideration—hereditary taints of insanity or abnormal cerebral function, and were transmitted from remote ancestral abuses of the laws of nature or arising from defective organization, as in idiocy. What made them so remarkable was their *suspension* from active manifestation for one or more generations; then from some exciting cause the original abnormality will again crop out from the latent condition. The proximate causes of hereditary peculiarities mostly arose from the state of mind (nervous system) and the health of the body generally of the parents during the procreative function; those unquestionably materially influenced the future offspring. Education so essentially modified the brain's condition, even in the lower animals, that the offspring came into the world with a predisposition to certain talents, as was shown in thorough-bred dogs and horses. The limit to this perfectibility was always in relation to the special organisation of the animal. If time would admit, it would be in his power to show how genius and other specialities are oftentimes of a most remote origin, implanted by some one in our ancestral line, which only required to be brought under favourable conditions of *excitement*, so that it might be enabled to emerge from its latent state, as in the case of gout and other diseases.

Captain BURTON thanked Mr. Harris for his valuable paper. Mr. Harris was an anthropologist, and that was saying much. But Captain Burton could not agree with Mr. Harris on any one point. The question was simply one of census. We wanted some thousand (better some hundred thousand) contemporary cases before we could make up our minds. The hospitals have annihilated the idea that the impression upon the pregnant mother influences the offspring. Captain Burton believed that a census of eminent men would annihilate all Mr. Harris's theories.

Mr. HUGHES assumed that the fact of transmission of various mental and bodily qualities and peculiarities was allowed, but it appeared to him that the subject brought forward by Mr. Harris for discussion was how to account for the admitted facts. Mr. Harris propounded the theory that there was an ebb and flow of properties in a succession of individuals—an appearance, increase, a climax, and decline of qualities, independent of external circumstances. The only argument brought forward in favour of this opinion was one drawn from analogy. Nations rose, attained their greatest, and fell; species appeared, became abundant, and disappeared. According to Mr. Harris's view, this ought to be due to some property or condition inherent in the nation or species. But such does not seem to be the true explanation. If we watch the rise and fall of a great nation, we find that, while

they have to struggle against powerful neighbours or against unfavourable conditions of any kind, mental and bodily vigour is called forth and fostered; when luxurious habits following success produce effeminacy, a vigorous race, in the stage of growth perhaps, comes in contact with them, overthrows them, and they are gone. Nor have we any reason to believe that species would die out of themselves provided no stronger species, developed alongside of them, came to destroy them or their food, and no exceptional geographical changes rendered it impossible for them to survive. Some forms of life of simple habits, such as the plain little lingula or the foraminifera, have existed from very early times. The cephalopoda, on the other hand, could not hold their own with stronger carnivorous animals, and are nearly gone. So by analogy we may explain the facts observed in families. In the struggle for success mental and bodily vigour is exercised, strengthened, and transmitted. Success once achieved, luxury is too often followed by effeminacy, and the mental and bodily vigour declines.

The CHAIRMAN thought the paper a very valuable one. There was, however, one objection to it, viz., that it contained so many exceptions to the general rule; but he (the Chairman) supposed that this was really inherent in the subject itself. There was one point to which he would allude. According to Gall, when the physical constitution is transmitted from parents to children the latter participate in the same proportion in their moral qualities and intellectual faculties. The last part of this proposition (as to the intellectual faculties) was also maintained by Buzareingues. Gall's assertion has since been disproved. It is no doubt sometimes the case, but the reverse frequently happens. It is also a fact that when children differ altogether from their parents in physique they often resemble them in their moral qualities. He (the Chairman) did not speak of his own authority, but on that of Prosper Lucas, author of the celebrated work "*L'Hérédité Naturelle*," and the authors mentioned by him.

Dr. King, Mr. J. W. Jackson, Mr. Wake, Mr. George St. Clair, and Mr. Charlesworth also joined in the discussion, and the author replied.

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*On the PHYSICAL, MENTAL, and PHILOLOGICAL CHARACTERS of the WALLONS.* By RICHARD S. CHARNOCK, Ph.D., F.S.A., Vice-President Anthropological Institute, and C. CARTER BLAKE, Doct. Sci., F.G.S., Hon. Mem. Anth. Instit., Lecturer on Comparative Anatomy Westminster Hospital.

ACCORDING to the census of 1849 one-third of the people of Belgium speak the Picard and Wallon, and the other two-thirds the Flemish, but this does not at all establish what is the country occupied by the Wallons, which has been differently defined. We note the following from some of the best authorities: "The

Wallons inhabit the Ardennes from the Meuse in a south-west direction from Liège to Namur; "The dwellers in the country between the Scheldt and the Lys are called Wallons;" "The most warlike of the Netherlands are said to be the Wallons or natives of Hainault and Artois;" "The Wallons are to the Vlamsch or Flemish in the Netherlands nearly the same as the Highlanders of Scotland are to the Lowlanders;" "In a more extended sense the word is applied to the inhabitants of Hainault, Namur, Luxemburg, Limburg, and a part of the bishopric of Liège, where the Wallon or old French is spoken;" "The Wallons occupy the tract along the frontiers of the German-speaking territory in the South Netherlands, from Dunkirk to Malmédy; they are located more particularly in the Ardennes, in parts of the departments of Pas-de-Calais, Nord, Aisne, and Ardennes in France, but chiefly in South Brabant, as well as in the provinces of Hainault, Namur, Liège, and in the greater parts of Luxemburg, and finally in some towns and villages in the neighbourhood of Malmédy, in Rhenish Prussia."\* A modern French writer (Xavier?) says, "The word Wallon is a name given, to the inhabitants of the southern provinces of Belgium who speak the idiom termed Wallon or old French, which some regard as a remnant of the Gaulish. The limit which this language does not pass is indicated, towards the north, by a line from Calais to Verviers or to Limburg, by Saint Omer, Lille, and Tournai."† So much for their habitat. The great centre of the Wallon nationality, though it is by no means in the centre of the Wallon district, is at Liège. Here the people still speak almost wholly Wallon; here more has been done than in any other part of the Wallon country to promote the study of the language; and here are printed nearly all the works in the language.

The Wallons are called Wälsche by their neighbours the Germans, Walen by the Dutch, and Walon by themselves. The Flemish nickname them Fransquillons. The appellation Walon is said to be derived from the old German word *wahle*, a foreigner. *Wahle* would first become Wal (whence the plural, *Walli, Galli*),

\* Chambers.

† Lamartinière says: "On donne le nom de Wallon à tous les peuples des Pays-Bas dont le langage ordinaire est un vieux Français, comme dans l'Artois, dans le Hainault, dans le Luxembourg, dans une partie de la Flandre et du Brabant. Quelques-uns y comprennent même le pays de Liège, à cause qu'on y parle un Français corrompu." According to Bouillet, "on nommait Wallons ainsi jadis les habitants de cette partie des Pays-Bas où l'on parlait l'ancien Français dit *Wallon*, que l'on croit dérivé du Gaulois (appelé *Waal* en Hollandais). Le pays *Walon*, au N. et à E. de la Flandre Française, comprenait la plus grande partie de ce qui forme aujourd'hui la Belgique, savoir les Flandres occidentales et orientales (dites ensemble *Flandre Wallone*). La province de Namur, le Hainault, le pays de Liège, le Limbourg, et même le Luxembourg."

and finally Walen, Walon. The Wallons (whose number in Belgium, where they are principally located, is put down at one million and three quarters) are the descendants of the old Gallic Belgæ, who held their ground in the Ardennes mountains when the rest of Gaul was overrun by the German conquerors, but who became eventually Romanized, especially in their language.

The Wallons are tall, somewhat slender, raw-boned, and strong. The hair is dark, the eyes fiery, dark-brown or blue, and deep sunk.

Dr. Beddoe, in a paper on the "English," after referring to the fact that there is a preponderance of dark hair and eyes in the towns as compared with the rural districts, remarks, "The phenomenon repeats itself in Belgium and Germany in a more striking manner. Thus at Antwerp, Louvain, Huy, Cologne, Düsseldorf, Münster, Aachen, Brunswick, Leipsic, and even at Prague, I have found the citizens darker than the peasantry; and if the contrary is the case at Vienna, and perhaps at Liège and Namur, both cases are easily explicable; the Liégeois peasantry is like a Wallon promontory in a Teutonic sea, and the Viennese are mostly Germans." The same author, working independently of Dr. Wilson, and in a different manner, says "he had educed the same conclusions, which have since been confirmed by further investigations, including a few upon Swedish, German, and Wallon heads, and moreover by a visit to Rheims, where, in the elaborate sculptures of the monument of Jovinus, he had the satisfaction of beholding the same marked features, square forehead, prominent brows, and angular chin, which almost equally to the present day characterize the Belgic Kelt of the Continent and the Firbolgian of Arran." Dr. Beddoe illustrates the last conclusion as follows: "Length of face varies like length of head, but is generally considerable. In the Firbolgs of Arran, and in many Wallons, it is conspicuously great." . . . . "Ten Wallons from the province of Namur, as representatives of a race more or less Keltic in blood, gave a cranial index of 77.6. So far as the skull serves to indicate affinity, the Wallons may be said to be only less Keltic than the population of Wiltshire, West Somersetshire, and counties Cork and Kerry. Their cranial modulus precisely accords with that of the Kerrymen."

The ordinary Wallons stand in a similar relation to Belgium as that which the Irish peasant does to the "Sassenach" of England. They are poor, jovial, good-natured, superstitious, chaste, hospitable, quarrelsome, violent, and generous, like the Irish, and thus evince their Keltic descent. They are tough, rough, and hardy, and make excellent soldiers. The Spanish armies in the Pays-Bas were made up of Wallons. As evidence of their peculiar character, a Wallon will drag a pig from Namur to Ghent, and even to Bruges or Antwerp, in order

to gain a few sous more than he could in his own district. A modern writer\* says of the people: "The Wallons of the present day resemble their French more than they do their German neighbours. They surpass the Flemish in adroitness, activity, and skill, and the French in earnestness, perseverance, and diligence. In impulsiveness they resemble the latter more than the former, but their anger sooner cools than with the more deeply-feeling Fleming. It is worthy of notice that the Belgian revolution was pre-eminently the work of the Wallon districts, and that the most eminent of the modern statesmen of Belgium are of Wallon descent. It was against the Wallon spirit and tendencies that the Flemish movement was chiefly directed." A special mental and moral character may be predicated of the Wallons of each district. "Those of Liège" (says Duvivier) "are very lively, spiritual, and laborious; those of Namur, on the contrary, are proud and coarse. The Wallons of Upper Pomerania are said to stand lower than even those of Namur. Among the Wallons of Liège even the women are renowned for their strength, industry, and energy. Like the men, they do the hardest kind of work, as coal-drawing and towing the Meuse boats, and the Germans style Liège '*Hölle der Frauen*' (the womens' hell)." It is remarkable in what a quiet and unobtrusive manner this people have spread themselves over the continent. Like the poor Savoyards, many Wallons from the Ardennes go on foot to Paris. In the German towns on and near the Rhine, as at Cologne, Trèves, Aix-la-Chapelle, and Düsseldorf are little colonies of Wallon handicraftsmen, here called *Wälsche*. In 1843 they numbered 200 in Krefeld. There are also small colonies at Amsterdam, Rotterdam, and Utrecht. In the first-named town is also a Wallon (*i. e.* a Roman Catholic) church. The Wallons of Cologne are much praised for their perseverance and energy. They go on ploddingly and conscientiously, and, as a rule, are able to accomplish any kind of work that can be done by the natives. Like the rest of the people of Belgium, the Wallons are ardent, even ultramontane Roman Catholics. A Protestant church exists at Liège in one of the back streets, but there is no congregation.

The Wallon dialect must not be confounded with the Rouchi, spoken in what was formerly French Hainault, and in a part of Belgic Hainault, as far as Avesnes and Maubeuge, called *Pays de Lauvan*, because *Lauvan* is used for *là-bas*.\* The Flemish language is much mixed up with French, and has borrowed many words from both it and the German. A large portion of it sounds in French ears like German jargon. "But," says a German authority, "the mixing of the Flemish with the French is otherwise than that of

\* Chambers.

† Conf. Hécart.

the Wallon with the German. In the Flemish the ground-physiognomy of the language has remained the same as the old German, but is here and there somewhat French. In the Wallon, however, the German is quite flesh-and-blood forced into it, and has altered the ground-physiognomy of the language. Many of the words have also been modified from the French and German languages, not after the French, but after the German manner, thus:—

FRENCH.	GERMAN.	WALLON.
Épicerie,	spezerei,	spesserie.
Épinards,	spinat,	spina.
Capuchon,	kapuze,	kapuss."

Again, German scholiasts assert that above one-third of the words in the Wallon are of German origin.

Notwithstanding all that has been written on the subject, we think that the base of the Wallon is the old French, a language derived from the Latin and the ancient Keltic. There are indeed more Keltic words preserved in Wallon than in any of the French dialects. It has many from the German, and a few from the Netherlandish and Spanish. Whether or not the Wallon dialect contains any remains of the ancient Scythic language we are not aware, but Herodotus gives the Scythic word *spu* for both a "fountain" and an "eye," and the name *Spa* may be etymologically connected therewith.\* Singularly enough, the same word is found both in Hebrew and Chinese for both "eye" and "fountain," and like resemblances occur both in Persian and Greek.

The Wallon dialect is rich in metaphors, witty, in expression boldly figurative, and is full of onomatopœias, arising from a vulgar mimicry which is untranslatable. *Generally speaking*, we may say that the Wallon is a spoken, but not a written, language. The pronunciation differs in different localities, and such are the modifications of accentuation that almost every village has its own manner of expression. Even at Liège the pronunciation varies to some extent in different quarters, and an inhabitant of the left bank of the Meuse knows one of the right bank by his drawling pronunciation. In other parts of the Wallon district the difference is still greater; thus, in a part of the ancient marquisate of Franchimont *mohonne* is pronounced *manhon*; *femm*, *famm*; *drap*, *drep*.† To the west of Liège, as at Ans, the pronunciation differs also. Here they usually substitute *â* circumflexed for *a* simple; thus, *effanse* is pronounced *effâ*. On the other hand, in Outre-Meuse the pronunciation is harsh, rough, and guttural; as *colank* for *colon* (pigeon); *St. D'nik* for *St.*

\* Σπου τὸν ὀφθαλμὸν καλεῖται. The Liège word *sipité*, *spité*, is rendered "jaillir", "sauter".

† Conf. Henaux.

*D'nih*, &c. At Liège and in its environs they express "yes" by *ave*, which is uttered with a sharp sound. In Franchimont it is *oyé*, pronounced slowly; at Verviers they drawl out *aye*, in Hesbaye *oyé*, and in Condroz *ayé*. This distinction is ancient, being recorded in documents of the fifteenth century. The Wallons emphasize a good deal; the vowel *u* has more the value of the German *ü* than that of the French *u*. This often produces a harsh, whistling sound. The alphabet contains the German letters W and K (as well as C), which the French has not. Thus *wazin*, for *voisin*; *kimin*, *kmin*, for *comment*; *kinoh*, *knoh*, for *coin* and *corne*; *Walzin*, name of one of the chateaux near Dinant. K takes the place of q, as *kwan* for *quand*; *ké*, *kél*, for *quel*, *quelle*; and *w* for *g*, as *wan* for *gant*; *wér* for *guère*. The following will give some idea of the ordinary Wallon dialect:—

WALLON.	FRENCH.
Leesai,	lait.
Lamm,	miel.
Thier,	mont.
Pôk,	peu.
Mutoi,	peut-être.
Chivâ,	cheval.
Aiw,	eau.
Tiess,	fête.
Bok,	bouche.
Pi,	pied.
Nute,	nuit.
Jou,	jour.
Pehon,	poisson.
Iepou,	c'est possible.
Atech (attache?)	épingle.
Amagnî,	manger.
Ehiodé,	chaud.
Fiêr or fiatr,	fer.
Solo,	soleil.
Nareinn,	nez.
Vein,	vin.
Rog vein,	vin rouge.
Blan vein,	vin blanc.
Pourçai	cochon.
Handel or hâdel,	marché.
Sipet,	épais.
Freu,	froid.
Som mi Amm,	sur mon honneur.
Mezâh,	besoin.
Todi,	toujours.
Pire,	pierre.
Berbi,	mouton.
Ognai,	agneau.

We give the following version of the Lord's Prayer in the Wallon dialect of Liège:—\*

\* See Chamberlayne, "Oratio Dominica". 4to. Amsterdam, 1715; Adelung, *Mithridates*.

"Nos Peer, ki es a cir, vos sen no seûye santifi; vos roame nos adveigne; vos volte seûye faite, et Têr, kom a cir; Dîne no ajourdou nos Pan quotidien; pardone no nos ofence, kom no le pardonan a ciki nos on ofencé; ni no duhé nen diven de tentacion; mai dilivre no di to ma. Ensi seûye ti."

We will now make a few remarks on the dialect of Liège, and for further information will refer to the interesting works of Simonon and Henaux. The dialect of Liège is distinguished by its vivacity, the richness of its figures, and its sonorousness, which is quite the reverse in the dialects spoken in other parts. This dialect is in fact not only superior to the others, but also to all the patois of France. The grammar of the written dialect of Liège is not always the same as the spoken language. It has to a certain extent retained the ancient pronunciation of the letter *s*, which has been suppressed in modern French, thus: *chestî, mestî, prâstî*; in French *château, métier*, etc. The patois of Liège has eighteen masculine terminations, viz., *a, â, an, é, ain, in, è, ê, i, î, êl, eun, o, ô, on, u, û, ou, ôt*. The adjective generally precedes the noun, which is the same both in the plural and in the singular. Adjectives in the plural placed after their nouns are the same both in the plural and the singular, but in those placed immediately before their nouns the adjectives in the masculine gender take a *z* in the plural, but only when they commence with a vowel. In the feminine they take an *è* in the plural before nouns which commence with a non-liquid, and *éz* if they commence with a vowel or a liquid. The three persons of the verb have generally the same termination. Besides the ordinary imperative there is a more energetic form, which is used with the auxiliary verb *alé (aller)*; thus, *va maîl, va jowé, val kweri* (va manger, va jouer, va le chercher) become, in the energetic imperative, *vas' maîl, vas' jow, vaz el kwir*.

The Wallons are poetical, rich in song, and fond of the dance. They have many fine old national songs and peculiar chants, which the children sing, and which bear no resemblance to those of France or Germany. These songs are still composed in Wallon. In the suburbs of Liège and other Belgian towns the Wallons often dance upon the high roads with linked hands (German *Reihen-Tänze*, French *Chansons de Ronde*). They dance round the acquaintances they meet, singing at the same time lively and satirical songs which the Germans call *spotliedern*. The Wallon dialect is well adapted for wit and jest.\* Some of these songs are launched against the Germans, others against the French. The Wallon proverbs or *spots* are remarkably concise. Dejardin

\* Conf. Meyer.

has published an exhaustive work on the subject. The following are examples from the latter author:—

*Les calins n'ont qu'on tims.* Litt.: Les méchants n'ont qu'un temps. Le triomphe des méchants est de courte durée.

*Il n'fât nin ach'ter on chet d'vin on sèche.* Litt.: Il ne faut pas acheter un chat dans un sac. Conclure un marché sans connaître l'objet dont on traite. (*Acad.*)

The eighteenth century is considered to have been the era for the Wallon language. At this period were printed several operas, comedies, hymns, patriotic chants, cantatas, and erotic and sportive poems. Scarcely had the century commenced when Lambert de Rickman satirized the thermal and mineral waters of the country in his poem entitled "Les aiw di Tonk." This was followed by the "Pasqu'ee Critique et Calotene so les Affaires del Medicine," a long, amusing, and elegant composition of an anonymous writer. Towards 1757 followed dramatic pieces entitled "Si Ligeoi egagi," by J. J. Fabry; the "Ypocontes," by S. de Harlez; "Li Voögge di Chofontaine," by de Cartier; "Li Fiesse di Houôte-si-Plou," by H. G. de Vivario. To these poems, which were held in great esteem, the learned Jean Hamal composed the scores, which were afterwards found worthy of the praises of Grétry. There are many unpublished manuscripts in the language.\* The Liège word *sipo*, *spo*, is rendered "proverb," "façon de parler figurée." It may, however, be etymologically the same as the German *spott*, mockery, scorn. Some of the geographical names in the Wallon district may be traced to the French; others to the German, Keltic, and Wallon. Such names as Hève, Serè, Teux, Tif, and Toncq are said to be pure Wallon. The termination *ter* signifies "habitation," and *cie*, which is always joined to the name of the proprietor, or the object, as in Geraidreie, Hermeie, Joupeie, denotes "habitation" or "street."

The following authors may be advantageously consulted on this subject:—Cambresier, R. N. J., "Dict. Wallon Français," Liège, 1787, 8vo.; Dejardin, Jos., "Dict. des Spots des Wallon," Liège, 1863, 8vo.; Dom, Jean François, "Dict. Roman, Wallon," etc., Bouillon, 1777, 4to.; Duvivier, "Wallons," "Grandgagnage, T. C. J., "Vocabul. des Noms Wallons des Animaux," etc., Liège, 1857, 8vo.; Henaux, Ferd., "Études Historiques, etc., sur le Wallon, Liège, 1843, 8vo.;" "Les Omnibus Wallons, ou Recueil des Locutions Vicieuses," Namur, 1864, 8vo.; "Meyer, Grosses Conversations Lexicon," Remacle, L., "Dict. Wallon Français," Liège, 1857, 8vo.; Simonon, C. W., "Poésies en Patois de Liège, précédées et suivies d'un Glossaire," Liège, 1845, 8vo.; "Wallonades: Poèmes, précédées par une Introduction par Alfred Nicolas," Liège, 1845, 8vo.

\* *Conf. Simonon.*

The following paper was read :

NOTES *on the* WALLONS. By JOHN BEDDOE, M.D.

MY ideas respecting the Wallon physical type are founded upon observations made at Liege, Huy and Dinant, and in smaller number at Verviers, Namur, Givet, and Mezieres-Charleville. Altogether, I took note of the hair and eyes in about 1400 people, but of the measurements of the head in only ten, who were inhabitants of Dinant and the neighbourhood. The description of the Wallon type given in the paper by Drs. Charnock and Blake accords very well with my own opinion. It differs very markedly from the forms prevalent in Flanders and Brabant, Westphalia and the Lower Rhine ; in fact, few ethnological frontiers in Western Europe, I suppose, are better marked than that of the Brabançons and the Wallons, which is crossed by the traveller on his way from Mechlin, Louvain, Landen, and Tirlmont, to Liège, notwithstanding that Liège has long been a great commercial and manufacturing centre, and swarms with strangers and descendants of foreigners, whose presence tends to obscure somewhat the true local type. At Verviers, a little further east, and more among the hills, the type I speak of comes out still more strongly, and the dark, or even coal-black hair of the peasants, their square foreheads, high cheek-bones, aquiline noses, and pointed chins are very conspicuous. Not many miles further, again, as one quits the hills and enters the open country about Aachen, both features and complexions change again, and remind one of those left behind in Brabant, though with certain shades of difference.

To my eye this hatchet-faced Wallon type is fundamentally the same which prevails throughout the whole north of France, from Rheims to Dieppe, though it may be most boldly and strongly marked in the Ardennes. It is the same which William Edwards called *Kimric*, and which Broca and other French anthropologists connect with tall stature and light hair, contrasting it in these and other respects with the dark, short, round-headed type of central and southern France. It abounds in Northern Italy, is pretty common in Brittany and Cornwall, and seems to constitute an element of more or less importance in the population of most parts of the British Isles. But whether there be any good ground for connecting it with a light complexion and fair hair I very much doubt. Light hair is indeed more frequent in the north-east than in most other parts of France ; and it is in the north-east that the *Kimric* type prevails ; but even there, if we adopt the nomenclature of colours which any Englishman would employ, the bulk of the population is dark-haired. The fact is (and I have repeatedly had occasion to recall it to notice) that people's ideas about hair colour differ

more widely than is generally supposed. Observers belonging to a country or district where any particular hue is rare, will be found usually to exaggerate the prevalence of that hue among the people whom they observe. Thus Worsaae, coming from Denmark, where black hair is rare, talks of the dark hair of the southern English, while Frenchmen almost always think and speak of us as a blond-haired people. It will not do, therefore, to reason from a collation of the observations of several persons, as is often done in this matter of hair-colour, unless indeed some such plan as Broca's has been adopted, for reproducing accurate ideas as to the facts.

To resume. We have in the Wallons a population which may be roughly described as long-headed, long-faced, and dark-haired. To the east of them, in the Rhineland, are the Germans, broad-headed, and comparatively light-haired. To the north and north-east the Flemings, Hollanders, Frisians, and Westphalians, all light-haired, and tending on the whole to be broad-headed, such tendency, however, being less marked in the Frisians, and perhaps in the Flemings, than in the others. To the south-west, in the plain-country of northern France, is a people much like to the Wallons in colour and frame of body, and probably also in form of head. But as we proceed westward to the Seine and beyond it, the hair lightens while the Norman impress strengthens. I need not enter into the subject of the distribution of hair colour on this side of the channel.

I regard the Wallons, then, and their hilly, wooded, and difficult country, as a Kimric or Belgic cliff, against which the tide of advancing Germanism has beaten with small effect, while it has swept with comparatively little resistance over the lowlands of Flanders and Alsace, and penetrated into Normandy and Lorraine. I look upon the colour of the hair as a tolerably good index of the proportion of German or Scandinavian blood, inasmuch as it seems to lighten wherever that proportion increases, in France as well as in England or Ireland.

It would be uncandid, however, to omit mention of certain points which seem to favour the view of Professor Huxley, who thinks the Kelts, Belgæ or Kimri, were the first wave of this Germanic tide, and a fair-haired people. The late Prof. Spring of Liège, with whom I discussed the physical type of the Wallons, spoke of them, so far as I can recollect, as long-headed, with oblique eyebrows, high cheek-bones, prominent brows, and angular chins; but he did not recognise the long face and aquiline nose as a part of the true Wallon type, and when I drew his attention to some faces which displayed *my* Wallon type very strongly, he said they were doubtless common, but he thought they were due to a Germanic cross. This I could not agree with, as to my

eye they were utterly un-German. But I must confess that I have seen faces in Friesland and in West Flanders (though not in the Rhineland), which were, except in colour, something like those of my hatchet-faced Wallons, though not quite so strongly marked. The nearest approach, then, that I can make to Professor Huxley's theory is as follows:—I think it possible that the Wallons, together with the population of the greater part of France, *may* have been constituted as a race by the crossing of a dark, round-headed Ligurian breed with a fair long-headed one, nearly allied to the modern Frisians, of whom the Cimbri of Roman history may have been the rear-guard. Such a hypothesis as this would dovetail very fairly with some of Mr. Pike's notions about British ethnology. But as the settlement in Gaul of this hypothetical xanthous Keltic or Kimric people must have been very ancient, I do not think the solution of the much-vexed question of the complexion of the Gauls would be at all assisted by the adoption of this view. Either changes of climate and habits have altered the Wallons and other Belgic Gauls from fair to dark-haired, since the days of Strabo and Ammianus; or else they were then, as now, in the main a dark-haired people. I confess that I am still more inclined towards the latter opinion than the former.

The meeting then separated.

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FEB. 19TH, 1872.

SIR JOHN LUBBOCK, Bart., M.P., F.R.S., *President, in the Chair.*

THE Minutes of the previous Meeting were read and confirmed.

The following new members were announced: CHRISTOPHER BOWLEY, Esq., Cirencester; RICHARD JOSEPH NUNN, Esq., M.D., Savannah, Georgia, United States of America; EDWARD HARRIS, Esq., Rydal Villa, Longton Grove, Sydenham; JOHN EDWARD PRICE, Esq., F.S.A., 53, Beresford Road, Highbury, N.; and JAMES PEDDIE STEELE, Esq., M.D., B.A., 13, Charlotte Street, Buckingham Gate, S.W.

The following presents were announced, and the thanks of the meeting voted to the respective donors:—

FOR THE LIBRARY.

From the ACADEMY.—Sitzungsberichte der Kaiserlichen Akademie der

Wissenschaften. Philos.-Histor. Classe, 66 Band, Heft 2 and 3; ditto, 67 Band, Heft 1, 2, and 3; ditto, 68 Band, Heft 1. Math.-Naturw., 1870, 1 Abth., Heft 8, 9, and 10; 2 Abth., Heft 9 and 10; 1871, 1 Abth., Heft 1, 2, 3, 4, and 5; 2 Abth., Heft 1, 2, 3, 4, and 5, Almanach 1871.

From the SOCIETY.—Proceedings of the Liverpool Architectural and Archæological Society, 1871.

From the ROYAL UNIVERSITY OF CHRISTIANIA.—Beretning om Sundhedstilstanden og Medicinalforholdene i Norge, 1867; Tabeller over de Spedalske i Norge, 1 Aaret, 1869; Bidrag til Lymfhektjertlernes normale og patologiske Anatomi, by G. Armauer Hansen; Generalberetning fra Gaustad Sindsapgeasyl for Aaret, 1869.

From the SOCIETY.—Bulletin de la Société Impériale des Naturalistes de Moscou, 1 and 2.

From the AUTHOR.—Man, contemplated Physically, Morally, Intellectually, and Spiritually. No. 1. By J. W. Jackson, Esq.

From the Rev. W. W. NEWBOULD.—Bibliotheca Psychologica. By Dr. Gräke.

From the AUTHOR.—La Race Prussienne. By M. L. A. de Quatrefages.

The following paper was read:

STRICTURES *on* DARWINISM. By H. H. HOWORTH. PART I.—  
ON FERTILITY AND STERILITY.

AMONG those who have advanced the cause of science by hard and indefatigable work there are few that can compare with Mr. Darwin; whether we consider the number of new facts he has collected, the bold and ingenious theory he has developed, or the scrupulous candour, and fairness, and sobriety of his arguments, we are all, I hope, agreed in honouring his name as a Nestor among naturalists. We are all also agreed, I hope, in the opinion that the discussion raised in Mr. Darwin's works on the "Origin of Species" is a purely scientific question in which we have nothing to do with religion, which is not to be decided by prejudices, nor by fanaticism, but which must stand or fall by its inherent truthfulness or error.

With perfect consistency and fairness Mr. Darwin has not shrunk from applying his theory to man as well as to the animal and vegetable kingdoms. If it be true of the latter, as Mr. Wallace and others hold that it is, I can see nothing but prejudice which can exclude its operation from the former, and this being so it becomes a question of vital interest to the students of our science, and not only so, but our science probably furnishes more valuable material for the solution of the problem than all the rest put together.

As I have been taken to task elsewhere for not stating the

theory of Mr. Darwin correctly, I must begin with an exposition of the opinions I mean to controvert.

I take the general theory of Evolution to be based on these propositions. No two individual objects in creation are alike, they all vary more or less from one another. If we arrange the whole in a series according to their affinity to one another we shall have a graduated series in which the variation between individuals, and the variation between classes, is one of degree, and not of kind, and if we give time and a variety of surrounding circumstances, the same causes which are competent to produce the slightest variation, may gradually produce the greatest. This law, when applied to the varieties of life, offers us the simple conclusion that all may have been derived from a common ancestor, and if we extend the analogy of individuals of one family to families of one class, and classes of one kingdom, we shall be driven to the conclusion that they not only might have been so descended, but that they actually were so. I say this may or may not be true; it underlies the whole Darwinian position, and is tacitly allowed and taken for granted by Mr. Darwin's philosophy.

Mr. Darwin's is a more particular and more limited form of this general law. In order that I may be saved from all formal questions I will put the issue as it has been put by Darwin himself in the preface to the last edition of his great book. He says then (page 4): "In the next chapter the struggle for Existence among all organic beings throughout the world which inevitably follows from the high geometrical ratio of their increase, will be treated of. This is the doctrine of Malthus applied to the whole animal and vegetable kingdoms. As many more individuals of each species are born than can possibly survive; and as consequently there is a frequently recurring struggle for existence, it follows that any being, if it vary however slightly in any manner profitable to itself under the complex, and sometimes varying conditions of life, will have a better chance of surviving, and thus be naturally selected."

In a few words, Mr. Darwin's theory is the old-fashioned theory of Malthus pressed to its utmost limits, and is shortly, that in the struggle for existence that is going on everywhere, the weak elements go to the wall, and are gradually eliminated while the strong prevail and survive. And the question of strength or weakness is not tested solely by physical vigour, but by all the circumstances which give any type a better or a worse chance of contending with the difficulties of the struggle for life.

If Mr. Darwin had been content with this general assertion his theory would have been well described by the phrase "Sur-

vival of the Fittest" to which some Darwinians are partial, which may mean much or little. *As it stands it is simply an identical expression.* That those forms of life survive which are best fitted to survive is a truism which the philosophy of the most opposite schools would willingly adopt, for it is equivalent to saying that white is white and grey is grey.

But Mr. Darwin deals with more than this mystical phraseology, and it is easy to find an issue with him.

Having laid down his abstract proposition he proceeds to apply it to a number of cases, and it is in this concrete form that I propose to examine it. To-day I shall be content to criticize one only of its factors—namely, that physical vigour, health and strength, in the struggle for existence, have a tendency to prevail to the exclusion and eradication of weakness and debility. The bold paradox I mean to prove is that the reverse is true of the majority of cases. It will be seen at once that this paradox is the same in substance as that maintained by Mr. Doubleday in his true "Law of Population," London, 1853, a work written in answer to Malthus.

The doctrine of Malthus, to which I shall confine myself, is that in which it is maintained that Population is stationary or decreasing where food is scarce and life precarious, and that it abounds where the opposite conditions prevail, or in other words that if you starve a people, pinch them in clothing, etc., they will not increase in numbers, but gradually decrease, while if you feed them well, and house them well, your census returns will be very creditable.

We will begin by examining the general law, which is not limited in its application to man.

To begin with the vegetable world, the gardener is a good empirical philosopher. In his experience of cultivated plants he has learnt many laws which escape the field naturalist, and as one of the main objects of his profession is to make his plants bear as many flowers, and as much fruit as possible, he has probably accumulated many facts which illustrate our position. The gardener then tells us that when a tree is barren in nine cases out of ten it is so because its growth is too vigorous, and it is making too much wood, and that the surest way of making it bear more fruit is to stint it in food or water, or to injure its health, etc., and the methods adopted are very various. One way is by pruning the roots very hard, a method especially efficacious with the pear and the fig, another is to prune the branches very hard, which is generally adopted with all kinds of plants which are wanted to bloom. Another, which is a proverbial remedy in the orchard, is to ring the trees, that is, to cut a ring out of the bark so as to stop the flow of sap. Another,

chiefly in vogue in vineries, and with wall fruit, is to bend and twist the branches into as many contortions as possible with the same object. Another, again, is to turn the plants when the wood is ripe into the frost, and to keep them there a long time. All these plans are more or less efficacious. The rationale of everyone of them is the mutilation, or starving, or weakening of the tree, in order to make it fruitful. If we adopt the opposite course what is the result? Our camellias, which have set hundreds of bloom buds in the autumn, will discard them rapidly if we stimulate the plant by feeding it, or giving it heat sufficient to induce a winter growth. The buds will fall off in myriads, and leaves and branches sprout out everywhere. The same is notoriously the case with peaches; the fruit that best tests the gardener's skill and patience. Orchids refuse to bloom if supplied with food and moisture, while if allowed to dry and shrivel away to the point of death they will throw out spikes of bloom; the same is true of cacti, and in fact of all kinds of plants, I know, in a greater or less degree. But we may go further. The double flower is a distorted form produced by cultivation, *i.e.*, by abundant food and decent conditions. In the double flower the reproductive organs are altered, and often absent, and no seed is produced. Now it is curious that one of the first effects of taking our wild flowers into the green-house is to make them grow double, and cease to bear seed. Thus it is that our double garden daisy grew out of the wild daisy, and the chrysanthemum out of the ox-eye; and where the effect is not great enough to affect the flower it often affects the fruit. The coarse little shrivelled melons, cucumbers, and oranges, growing on wounded, dried up, and paralyzed branches, are full of seed; while the fleshy giants that have been well tended and fed have hardly any seed at all in them. The same is the case with grapes, and the small grape that forms the domestic currant. The green-house is notoriously a bad place to ripen seed in, and so is the highly cultivated garden. The wild kale that grows on wild exposed rocks has a few ragged hard leaves, and a thick panicle of seed; while the cabbages in our gardens hardly bear any at all.

Mr. Darwin has cited one or two cases on the other side, of which the most striking is the case of the cereals which are notoriously heavily weighted with grain, and this chiefly due, he contends, to the heavy manuring and careful cultivation they have been subject to. But the cereals are cases that I should quote to prove my own position; with highly cultivated, thickly planted wheat, there must be a terrible struggle going on for light and air with the leaves, and for food with the interlaced and thickly tangled roots of a myriad of neighbours which press

upon each individual on every side, and cause the stubble to become very matted, a very different condition from that of the wild wheat of Thibet. The same argument applies to rice, and to other crops which are planted thickly, and which, in the phraseology of farmers, exhaust the land. So far as my experience goes, the evidence of cultivated plants is decidedly overwhelming against Mr. Darwin, and in favour of my position that the weak, the ill-fed, and the pinched, are the most fertile. Our means of testing wild plants is not so great. A correspondent of *Nature* calls attention to a fact which strongly corroborates me. He refers to the notorious fact that the money worts (he might have quoted the strawberry, the ivy, or any other creeping plant equally well) will hardly bloom at all if allowed to sprawl in all directions, taking root, and therefore nourishment at every joint, while if the suckers are spread out on slabs of stone so that the whole plant has to be nourished from the mother root, it will bear abundantly. Among weeds like groundsel and dandelion, the most abundant and fertile seed is scattered by those living on the edges of the common, weakly plants rooted among stones, and in a poor soil. Beech trees growing in rich pastures ripen little mast, the husks having no kernels. Oaks and firs bear the most fruit on rugged exposed situations, or where the subsoil is poor and gravelly. So that we may infer that what is true of cultivated plants is equally true of wild ones.

Mr. Doubleday in the postscript to his second edition quotes two facts which have an analogous bearing with the preceding, namely, that grafts from a dying tree strike with far more certainty than those from a tree in full vigour, and that seeds which have been kept some time germinate in the majority of cases far more surely than those that are recent. He also says that pear and apple trees bear most profusely just before they die, and that after severe winters, of which that of 1836 and 1837 was a notorious example, grass and other vegetables grow at an immensely increased rate. All these facts point in one direction only.

Let us now turn from the vegetable world to the animal. Stockkeepers and breeders have accumulated much sound experience on the subject, which corroborates that of gardeners in regard to plants. It is a golden rule with them to keep their animals weak, and in a state of depletion, if they wish them to breed freely. Pure breeds are seldom very fruitful; they are notoriously pampered and highly fed, and when prize short-horns and southdowns are turned into coarse pastures where kyloes and mountain sheep might feel it a luxury to live, but where their round sides are speedily denuded of flesh, they breed

much more readily; the same is true of horses. Mr. Double-day quotes the case of a highly bred blood mare, which for a length of time appeared to be incurably barren, and from which the owner naturally desired to obtain a breed, rendered fertile, and ultimately the dam of a numerous progeny, by being literally put to the plough and cart, fed sparingly, and worked down to a state of extreme leanness and temporary exhaustion. He goes on to say in the sheep, however, this principle of increase or decrease is most nicely developed. It is invariably found that if over-fed sterility is the consequence. On the other hand, in accordance with the leanness of the animal a produce of one, two, or three lambs takes place. Upon their knowledge of this fact the improvers of the breed of this animal are accustomed to act. In order to afford the best chance of a perfect animal it is believed that a produce of one lamb at a birth is desirable, and this the breeders of sheep contrive to secure by apportioning the food of the ewe to such a nicety that, avoiding sterility on the one hand, and a double or triple birth on the other, a single lamb is almost invariably the offspring of the animal so limited. It is also a fact known to stock-farmers that during severe seasons, when food is scarce, most lambs are on the average produced. Mild open winters are not favourable to the increase of sheep, because during such winters grass is plentiful. Farriers, I am told, very often bleed horses and cattle which are stubbornly sterile to induce fertility.

If we turn from domestic animals to semi-wild and only partially reclaimed ones we find that the same rule applies. I prefer to quote directly from Mr. Darwin, who has on this branch of the inquiry furnished us, as he so often does, with the best materials for an answer to himself. In this case he also completely answers an opponent of mine in *Nature*, Dr. Tait, who accuses me of misreading the rationale of the evidence. "The most remarkable cases, however, are afforded by animals kept in their native country, which, although perfectly tamed, quite healthy, and allowed some freedom, are absolutely incapable of breeding." "Rengger, who in Paraguay particularly attended to this subject, specifies six quadrupeds in this condition, and he mentions two or three others which most rarely breed. Mr. Bates, in his admirable work on the Amazons, strongly insists on similar cases, and he remarks that the fact of thoroughly tamed wild animals and birds not breeding when kept by the Indians cannot be wholly accounted for by their negligence or indifference, for the turkey is valued by them, and the fowl has been adopted by the remotest tribes. In almost every part of the world, for instance, in the interior of Africa, and in several of the Polynesian islands, the natives are extremely fond of

taming the indigenous quadrupeds and birds, but they rarely or never succeed in getting them to breed." Mr. Darwin continues his illustrations of this fact through many closely packed pages, after which he adds the following commentary (see "*Variation of Animals and Plants under Domestication*"), vol. ii, p. 158: "We feel at first naturally inclined to attribute the result to loss of health; or at least to loss of vigour; but this view can hardly be admitted, when we reflect how healthy, long-lived and vigorous, many animals are under captivity, such as parrots, and hawks when used for hawking, chetahs when used for hunting, and elephants. The reproductive organs themselves are not diseased, and the diseases from which animals in menageries usually perish, are not those which in any way affect their fertility. *No domestic animal is more subject to disease than the sheep, yet it is remarkably fertile.*" Mr. Darwin, with equal clearness and conclusiveness, decides that this sterility cannot be due to a failure of sexual instincts, change of climate, or want of food, and he concludes that certain changes of habits and of life affect in *an inexplicable manner* the powers of reproduction. However inexplicable the manner of its operation may be, it seems to me to be impossible to evade the conclusion that the *causa causans* of the sterility is that I am arguing for in this paper—namely, a more luxurious habit, a more vigorous health, a less precarious existence, induced by the care and attention of domesticators. If we turn from domestic and semi-domestic animals to wild ones, our facts are, of course, less numerous. Lovers of birds have remarked that after certain severe winters, in which almost all the small birds have been killed off, they have been replaced in a season or two at an astonishing rate by the recuperative vigour of the survivors who have meanwhile been reduced to the verge of death by starvation. Fish that visit the sea, like salmon, do not breed when in high condition, strong with the good living they have enjoyed in salt water, but spawn when they have become meagre and thin after a long sojourn and comparative fast in fresh water. Hibernating animals breed at a season when they are reduced by their long sleep and fast to a very thin and weak condition, and we explain in the same way the much wider fact that it is immediately after the frost has gone, and before the animal world has had time to recover from its hardships that the breeding seasons begins, and so we might continue our examples. Mr. Wallace met my arguments on this point in a very Johnsonian way. I will quote his expression, and the answer I gave him, which will do equally for others who take the same view. He said that when I produced an area in which all the animals were diseased and decrepit, and the strong and healthy ones had disappeared, then he

would credit my theory. I replied that this was no fair statement of my position. That I never maintained that the toothless tiger which cannot seize its prey will be the mother of a numerous progeny. She can do nothing but die, but that as a general law the more weak and ill-fed individuals are more prolific than the strong and well fed.

Mr. Darwin met the arguments of Doubleday and others in a very different manner. He quotes a few instances which seem to tell against them, but he, too, ignores the vastly greater number he had himself quoted on the other side, a portion of which I have given you to-night. The cases he quotes are very few, and they seem to be very unfortunate. The ferret breeds well in confinement, no doubt, but then the ferret is kept in a state of extreme depletion, in order that it may be always hungry and ready to hunt. The domestic fowl, we are told, lays much more abundantly in confinement when it is well cared for than in the wild state. There is an easy answer to this—the eggs of the domestic fowl are abstracted as fast as laid, and every bird-nesting boy knows that if the same plan is adopted with wild birds that they also will continue to lay. In fact, the wilder kinds of fowl, like game, will often make a nest in a wood, or under a hedge, and it is then found that, very like the wild fowl, they lay enough eggs to form a sitting, and no more. The case of the rabbit seems a strong one, but even here it is an undoubted fact that rabbits which breed at a prodigious rate are not those which are found near rich feeding grounds, there they are comparatively sterile. It is on the most barren sand hills near the sea, where food is poor and scarce, that they teem in myriads. The case of the sheep may be met in Mr. Darwin's own words previously quoted, "No domestic animal is more subject to disease than the sheep, yet it is remarkably fertile."

I take it, therefore, that the animal world in general fully corroborates the vegetable world in its evidence on the question at issue. We will now turn to the most conclusive and unanswerable case of man himself. I cannot, *in such a question*, put man in a kingdom separate to himself, believing as I do that he is influenced by very much the same laws as the vegetable and animal kingdoms, but I detach him in this paper from the rest, simply because our evidence about him is so much more abundant. To begin with individuals. Medical men, upon whose judgment I can thoroughly rely, tell me in confirmation of the dicta of Mr. Doubleday, that it is a recognised law of life with them that semi-convalescent people, and those only just recovering from prostrating diseases like fever plague, etc., are very fertile. It is proverbial with midwives that the same is true of consumptive people.

If we compare as classes the rich and well-to-do around us, especially those where the condition of prosperity has lasted for two or three generations, with the pauper population of our alleys we shall find that the rate of increase of the latter is much greater than that of the former. That in the houses where the word want is absurdly unknown, we have few olive branches round the table, while in the cellar dwellings near the drains they so abound that they may with great propriety be rather styled holly branches, and this, notwithstanding two important elements which ought theoretically to tell so much in favour of the well-to-do. One of these is the economical one that prudential restraint (a favourite doctrine of some philosophers) if feasible, may be expected to be put in force, not by the rich, who often wish for children, but by the poor who have too many. The other a physiological reason. It is well known that with rare exceptions a woman does not become pregnant so long as she continues to suckle her last child. Now, among the poor almost every mother suckles her children, while among the rich the number of mothers that do so is limited. Not as is often supposed because of mere fastidiousness, but because they secrete little or no milk, so that the condition favourable to pregnancy occurs at a much earlier date after childbirth among the rich than among the poor. The fact of poor fare inducing fertility is an old enough fragment of philosophy. The following extract from one of Marston's plays, written in the seventeenth century, which was pointed out to me by a friend whom I have previously named here, puts the problem rather humorously: "If Sir Amorous would have children, let him lie on a mattress, plough, or thresh, eat onions, garlic, and leek porridge. Pharaoh and his council were mistaken in their device to hinder the increase of procreation of the Israelites by enforcing them to much labour of body, and to feed hard with beets, garlic, onions (meats that make the original man most sharp and taking). He should have given barley-bread, lettuce, melons, cucumbers, huge store of veal and fresh beef, blown up their flesh, held them from exercise, addled them in feathers, and most severely seen them drunk once a day, then would they at their best have begotten but wenches, and in a short time their generation would have enfeebled to nothing" ("The Parasitaster, or the Fawn," a comedy by John Marston. Collection of old English plays. London, 1814, vol. ii).

Sir Thomas Brown tells us, in his "Hydriotaphia," old families last not three oaks. I find the following passage in a work written by M. Muret so long ago as 1766, quoted in the article on population in the "Encyclopædia Britannica;" speaking of the extreme healthiness of the Pays de Vaud, he says, "Whence

comes it that the country, where children escape the best from the dangers of infancy, and where the mean life, whatever way the calculation is made, is higher than in any other, should be precisely that in which the fecundity is the smallest . . . . I will hazard a conjecture, which however I give only as such. Is it not that in order to maintain in all places a proper equilibrium of population God has wisely ordered things in such a manner *that the force of life in each country should be in the inverse ratio of its fecundity,*" etc., etc. This seems to forestall Mr. Doubleday by nearly a century.

I will now proceed with the proof, trusting in the main to Mr. Doubleday for my facts.

He repeats the well known remark that our peerage and baronetage are not old, and that but few of the old Tudor nobility, and almost as few of the representatives of the original creation of baronets survive. Out of 394 peers in Parliament in 1837, 272 had been created during the previous eighty years. Between the year 1611, when baronetcies were first created, and 1837, 753 became extinct, and counting all the baronets living at the latter date, together with those who had been made peers, they only exceeded the number of extinct ones by twenty-three. Of the original creation only thirteen remained, while of the vast numbers James I made during his lifetime only thirty-nine remained. So that unless there had been perpetual fresh creations both orders must have been all but extinct. As it may be said that this was caused by laws of primogeniture (although no title becomes extinct as long as any descendant of the original holder of it in the male line survives) it will be well to quote other cases. Amelot, writing of Venice, reckoned that there were 2,500 nobles who had voices in the council. Addison adds that in his day there were only 1,500, notwithstanding the addition of many new families since that time. He says it is very strange that with this advantage they are not able to keep up their numbers, considering that the nobility spreads equally through all the brothers, and that so very few are destroyed by the wars of the republic. Malthus, in his "Essay on Population," p. 278, says the same in regard to the rich bourgeoisie of Berne, quoting statistics in his own support. But the same thing was known long before this. Tacitus mentions how in the days of Claudius not only had the old patricians of the earlier monarchy and republic decayed away and become nearly extinct, but that even the newer creations of Julius Cæsar and Augustus had gone the same way. Dr. Wallace has many pages of illustration from ancient writers to show how the luxurious and well-to-do classes rapidly disappeared in the great centres of Greek and Roman culture. The Mamelooks in

Egypt, the dominant caste of Turks in Europe, and of Manchu Tartars in China, all prove the same great fact. The result, then, of the general experience of the highest ranks in different nations, living under various conditions of life, among whom plenty and ease abound, who ought, according to the Malthusian doctrine, to be stocking the waste places of the earth, is that they are only kept alive by a constant recruiting and infusion of fresh blood from below. It may be urged that these are not fair examples—these are luxurious people whose big dinners and deep draughts have made them decrepit. It is well, therefore, that we should extend our survey somewhat further. Mr. Doubleday, fortunately, has dug much deeper.

The free burghers of Newcastle were a privileged and rich body of tradesfolk and artisans. They formed a close trades-union to which admission was to be had by outsiders by servitude as apprentices only. Doubleday has collected evidence to show that they were constantly diminishing in numbers, a decrease, be it remarked, accompanied by a more than corresponding increase among the people of Newcastle outside the burgess element. A curious pendent to this statement is the fact that since the loss of their privileges the burgesses have begun to increase at a much more rapid rate.

At Berwick, an adjoining town to Newcastle, with similar burgesses, differing only in not being wealthy and privileged, there is a marked contrast in the rate of increase, while in other privileged boroughs, such as Durham, Carlisle, and many more (see Doubleday, *op. cit.* 62) there has been a stationary or decreasing number of freemen.

If we take communities of men like the Quakers, among whom poverty is hardly known, who nearly all marry, and marry early, and who until lately seldom abandoned their sect, we shall find a general agreement among those best able to judge that they have not increased in numbers.

In America, before the civil war, while the slaves were increasing rapidly, the free blacks were decreasing. I am told by millowners and others that the vast increase of population that has occurred in Lancashire of late years has not been among the indigenous stock of the country, who are a comparatively stationary element, but among the Irish and semi-Irish inhabitants of the lower quarters of the large towns. It is notorious how crowded with children these low and miserable neighbourhoods are compared with the richer quarters, and how few of the women there are barren. If we extend our view to isolated portions of the community, we shall be forced to admit that this fertility is due entirely to the poor food and miserable living of these increasing elements.

One of the poorest and most destitute portions of the earth's surface is that comprised in the Scottish Hebrides. A miserable climate is supplemented by a scarcity of food and a want of clothing. Formerly the population maintained a decent existence by the manufacture of kelp, but the introduction of barilla and of free trade ruined the kelp trade, and a busy population was gradually reduced to the abject condition now existing at Skye, Lewes, etc. The conditions are those that in Mr. Malthus' view ought to militate against an increase of population, and yet we find that they have doubled their numbers in 60 years. See the observations in "Anderson's Highlands," p. 262.

From Sir John McNeill's Report on the state of the Western Highlands and Islands of Scotland, published in 1851, it would seem that the average of each family in Ulva and Tiree is a little over six, that is, father and mother and four children. The births in Rasay and Rona for the three years before the report were three times as many as the deaths. For many years, he says, the condition of the people in this district has become worse and worse, and Sir John makes an elaborate comparison between twenty-seven of the most miserable of the West Highland parishes with twenty-seven prosperous and well-to-do parishes in the Eastern Highlands, and found, to use Doubleday's words, that in the former, where the population was in constant danger of dying out for want of nutriment, and barely continued to exist, where the failure of the potatoe crop or the decline of the market for kyloes brought famine to their doors, the wretched population had increased between 1755 and 1841 at the astounding rate of 126 per cent., while in the eastern parishes there was a decrease during the same period of 29 per cent.

In Ireland we have a country whose circumstances are very similar. In 1837, out of a population of 8,000,000, no less than 2,000,000 were wandering and houseless mendicants, subsisting on charity. Dwelling for the most part in mud cabins, without window or chimney save a hole in the wall or roof, and shivering over a peat fire, they lived almost wholly on potatoes. Every edible besides—including wheat, barley, peas, beans, butter, beef, and bacon—was exported from the country, and under such conditions what do we find to be the rate of increase of the inhabitants? Between 1695, when the population was estimated by Captain Smith at 1,034,102, and 1831, when the census returns made it 7,734,365, there was an increase of 750 per cent., an astounding result, and more astounding still if we consult the table given by Doubleday, page 120, showing the intermediate years and how it grew with an accelerated speed as the poverty increased. In the decade between the census of 1821 and that of 1831 there was an increase of 930,000 in a total population of 7,000,000.

In Sadler's answer to Malthus there are some interesting tables about the number of children born in years of scarcity and those of plenty, from which it appears that, notwithstanding that the *latter are marked by a greater number of marriages, the former are marked by a greater number of births.* In 1846, a very prosperous and cheap year, there was an increase of 3,500 in the number of marriages and a decrease of 300 in the births the following year. In 1847 came the potatoe disease and famine and bank crisis, so that in the next six quarters there was a decrease of 2,000 in the number of marriages, while in the last three quarters of 1848 and the first three of 1849, when this decrease in the marriages ought to have begun to tell, there was an increase of 2,650 in the births.

Again, from 1488 to 1650 there cannot be much doubt that the population of England was rapidly diminishing. The contemporary writers and the Statute Book are full of proofs of the fact. During the same period there can be as little doubt that wealth was more generally diffused in England than at any other time. Acts of Parliament to limit wages and luxury, acts whose preambles set out the exceeding plenty then prevailing, are not to be mistaken. Fortescue mentions that the land was full of rich men. Many yeomen could spend £100 a year, equivalent to at least £600 a-year now. He says they were rich in gold and silver, drank no water, eat plenty of all kinds of flesh and fish, wore fine woollen apparel, etc., etc., and he especially compares the wealth of the English with the poverty of the French. An artisan earned in three or four days what would buy a sheep, a calf, or a quarter of barley or malt. Wine and beer were then common drinks of the people. An Act of the 24th of Henry VIII declares beef, mutton, pork, and veal to be the ordinary food of the poorer sort, and so we might go on for pages quoting facts that show that at this period of English history, when the population was rapidly diminishing, wealth and plenty were generally diffused.

Leaving these realms and crossing the channel, let us return with Mr. Doubleday to the north of Germany. We there find the land barren and the people poor, but crowded. In Bohemia, with its cold climate and its inhabitants feeding sparingly on poor diet of barley, oatmeal, potatoes, and milk, we have a population of 3,885 to a square German mile. In Silesia, where the climate is much milder and the crops better, but the people are very poor and badly fed, 4,090 in the same area; while in Bavaria, which is rich and prosperous, the population is only 1,980 to a square mile. In France, whence Doubleday has collected much valuable information, I will only quote one remark taken from a work of Mr. Thornton's on over-population.

In the Département du Nord, which contains most of the seats both of the French cotton manufacturers and of French destitution, population increases at a rate considerably more than double the average rate of the whole kingdom, or about 13 per cent. in ten years.

In Italy (excluding Naples, the most marked example, perhaps, of all, but about which statistics are wanting), Italy, where the country population is so well-to-do and has a climate which favours man in many respects, the average number of births to a marriage is three only, a proportion below that of any other European country, perhaps, except the equally well favoured Provence.

In Holland and Belgium, where we have a very rich soil very highly cultivated, where the law favours the division of property, and where we are so often told by travellers that population abounds, it is only 1,800 to the square English league, while in Ireland, one-fourth of which was bog, it amounted in 1837 to 2,391 persons to the square league.

America has sometimes been cited on the other side, but with very great perversity. In America the population has increased immensely from emigration and at an immense rate among the newer inhabitants, those whose first years of American life are those of hard toil and harassing struggle with Nature. It is notorious that in Kentucky and in the older parts of New England the rate of increase of the population is very moderate; indeed, while the great cities, which are even more crowded with abject poverty than those of Europe, notwithstanding the Utopian latitudes in which they are situated, are increasing rapidly and chiefly among the Irish inhabitants.

The increase of the black population of the States is at a remarkable rate, if we are to be guided by the notions of Malthus; and this increase has continued since emancipation, as the recent census shows, so that it cannot be due to the interested motives of the slave-owners, as some would urge.

In China and Japan cattle and sheep are almost unknown, in India the Brahmins forbid the eating of flesh, so that we have in these areas populations living on vegetable food, and chiefly on rice. However travellers may otherwise differ, they are all agreed in describing the miserably poor and wretched condition of the inhabitants of these areas; they agree also in describing their wonderful fecundity and numbers; they are packed most closely on the rivers, and where a poor fish diet is their ordinary fare. If it were not for wholesale infanticide it would be hard to see how the Chinese householder could live. In India, in the old province of Bengal, where the universal food is rice, the average of population reaches the immense total of 2,166 persons to each square league of land.

If we compare these areas with similarly situated areas elsewhere, where animal food is generally eaten, with South America, or Russia, or Turkestan, beyond the Oxus, we shall find a marvellous contrast. In the latter the population is very sparse, and the rate of increase very slow. And where we have any facts about semi-savage tribes who have changed their mode of living from a pastoral to a settled state, and have discarded the crook for the plough, such as the Tchuvashes, Bashkirs, etc., we shall find that synchronous with this change there was also a sudden increase in the census returns. These subjects of the Czar, who are now very fertile, were until about a hundred years ago very much the reverse.

We have now taken a rapid survey of civilised and uncivilised communities, and we ought to complete it by a similar survey of savage tribes, but unfortunately our facts are not so easy to find among these. What facts we have tend to corroborate our position entirely. Thus Lieutenant Musters, in a paper read before our society not long ago on the Patagonians, told us that it was the custom for the women among them, when they had been with the men, to get bled, as they believed it made them fertile. Mr. Price told us the same of the Quissama tribe in Madagascar. Neither of these races have been sophisticated with the philosophy that is popular in Europe, and their evidence is a most valuable empirical support to our position. It agrees so completely with the theories put in practice by both gardeners and stock-keepers, and to which I have already alluded.

I shall deal more in detail with the several causes that have extinguished races in my next paper of this series. There is one of them which comes opportunely here. Mr. Wallace was sarcastic in his observations upon me because I attributed the extinction of the Hottentots to the greater luxury of their lives having induced sterility among them. I believe this position, notwithstanding the unphilosophical sneers about it, to be most reasonable. We have parallel cases in Tasmania and New Zealand, where the race has undoubtedly diminished, and very fast, chiefly because of the barrenness of the women. In New Zealand the facts have been collected by Mr. Fenton in a most interesting paper entitled "Observations on the State of the Aboriginal Inhabitants of New Zealand, Auckland, 1859." From this I quote: "The usual number of barren to productive females is 20 in 487, or 1 in 24.35. Among the Maoris the numbers are 155 in 444, or 1 in 2.86, manifesting that the general presence of the procreative power among the Maori females is slightly more than one-ninth of that among females belonging to communities of which the population is increasing" (*op. cit.* 28). Again, "The unfruitfulness of women is likewise a recent characteristic, if the

Maories are to be believed when speaking on this subject. And this must be so, otherwise it is impossible to account for the great increase of the population during the twenty generations which the Maoris have passed through in this country, an increase which has taken place notwithstanding the considerable expenditure of life caused by perpetual wars and in spite of the constant operations of numerous other influences calculated to check the increase of numbers and shorten the duration of life. 'The rude forefathers of the hamlet' were, according to the universal consent of their existing representatives, blessed with prolific wives, and not seldom with several all producing simultaneously. Absence of issue from a union was not indeed unknown in former times, but the desire of children was always strong in the breast of the Maori female, and she was usually held in respect according to the number of children with which she had strengthened the tribe."

The only cause I can assign for this increased sterility is that made fun of by Mr. Wallace, namely, the contact of European civilization. The same was true also in Tasmania, where the greatest perseverance was used to induce the few surviving natives to breed, and without avail, and those who believe that man physically is only a member of the great animal kingdom will have no difficulty surely in accepting that as true of him that is true of all other forms of life, namely, that luxury makes him sterile and want fertile.

I must now briefly consider some remarks made by Mr. Herbert Spencer on this question, to which a correspondent of *Nature* has called my attention.

If I understand Mr. Spencer's argument rightly, it amounts to this, that Doubleday's facts are correct, but that his inferences are not so, and that the true explanation of them is found in the general law that animals propagate in the inverse ratio of their nervous and mental development, that in fact the simplest structures are the most prolific. Doubleday has himself considered this theory in the postscript to his third edition, and made some apposite remarks about it. He says with some reason that it may be perfectly true that the simpler structures are more prolific than the more elaborately organised structures, but it by no means follows that the simplicity of the structure is the cause of the fecundity." In the economy of nature a million blades of grass are wanted for one tree, and hundreds of herrings only make a mouthful for a porpoise, and as there is a greater need there is some law which supplies that need.

It is not difficult to test Mr. Spencer's position. Are the prolific Irish, Chinese, and Hindoos inferior mentally and in nervous development to the New Zealanders, the American Indians,

or the Hottentots? Are the English and Americans inferior mentally to the Spaniards or the Turks, or are their brains less in bulk? Is the shorthorn or southdown more gifted with nervous and mental attributes than the Kyloe and the mountain sheep? Do the semi-domesticated animals mentioned in such profusion by Mr. Darwin gain so much in mental and nervous development as to check their powers of reproduction altogether, as compared with their wild relatives *who have to exercise all their ingenuity and skill in catching their food*? Is the deer more intellectual than the greyhound or the rhinoceros than the shepherd's dog? Does ringing a tree or cutting its roots increase its complexity of structure? Does removing it to the greenhouse do so? *Do not battling with difficulties and struggling for existence tend to increase rather than decrease the nervous development and structural complexity of an organism*? I take it that there can only be one answer to these queries, and that answer adverse to Mr. Spencer.

In conclusion, I must state the result of the evidence I have collected in this paper, in which I have not knowingly shirked or evaded one difficulty, and in doing so I cannot but conclude that sterility is induced by vigorous health and by a plentiful supply of the necessaries of life, while fertility is induced by want and debility, and that this law acts directly against Mr. Darwin's theory, in that it is constantly recruiting the weak and the decrepit at the expense of the hearty and vigorous, and is constantly working against the favourite scheme of Mr. Darwin, that in the struggle for existence the weak are always being eliminated by the strong. I am aware that I only meet one factor in Mr. Darwin's argument. I hope, with your permission, to traverse the whole field he has occupied in future papers. The next one will be on "The Substitution of Types."

#### DISCUSSION.

Mr. HUGHES thought that the subject brought forward by Mr. Howorth offered interesting matter for discussion, and was fairly put, but protested against the proposition which the author combated being in any way identified with the views of Mr. Darwin. Mr. Darwin did not hold that the races which prevailed were necessarily larger or stronger, but simply that they had the greatest total of advantages for holding their own under the conditions in which they were placed. It was not always necessary for the survival of a race that they should have a very numerous progeny; for instance, the passenger pigeon produced very few young in its whole life, while the salmon, which had so many enemies from the time it was spawned that the race would stand a poor chance of surviving if it had not an almost innumerable offspring, produced its tens of thousands every year. The plant that needs a special combination of soil and weather

to sow itself, or forms the food of many animals, must produce many seeds. The proposition laid down by the author he understood to be, that conditions which *weakened* the individuals tended to make those individuals more fertile; and in reply to that, Mr. Hughes went on to show that the cases adduced by the author did not bear out this view. The gardener who prunes and gashes his plants, or removes them to other soils does so, not to *weaken* the plant, but to cut off the undue development of that part which would interfere with the production of what he requires. In the cauliflower and wheat, he wants more flower and seed; in cabbage and grass, more leaf. Fat and heavy cattle are produced by artificial means, and would not survive in a state of nature. In the case of fowls, man has selected certain breeds for laying, &c., and of course, knowing that over-feeding is injurious, does not feed his laying-hens in the same way as those he wishes to fatten; but no amount of cutting down their food would make a Brahmapootra lay like a spangled Hamburg. He did not believe that any race actually stunted for food was more prolific than the same race under healthy conditions with enough food. In the case of man, many artificial circumstances had to be considered. Among those who had a hard, rough life, the sickly young received no care, died off, and so those who were left were the most vigorous and grew up to propagate a vigorous race. Other cases adduced might be explained by the hereditary habit of the disuse of certain organs; and others, such as that of the Maories and the wild cattle of England, by the too close breeding in and in, when, from various causes, the race had become too small to allow of greater choice.

Mr. LEWIS, while thinking with the author of the paper that the theories commonly called Darwinian had been pushed by some people to unreasonable conclusions, could not but agree with the President that the author appeared to be confounding various conditions which were not necessarily the same. The principal thing proved by the paper appeared to him to be that an artificial state was less favourable to propagation either of man or beast than a natural state.

Dr. CHARNOCK said, according to the author of the paper, the poorly-fed are the most fertile. Did he also mean that there was greater longevity among them? He (Dr. Charnock) thought that the term "poorly-fed" was sometimes applied to those who lived upon a vegetable diet; but if an Irishman consumed eight pounds of potatoes daily, it might perhaps be equal to a pound of flesh consumed by anybody else.

Mr. QUARITCH said that Mr. Howorth had endeavoured to maintain the bold assumption that species of the animal and vegetable kingdoms are multiplied by their weakest and most delicate individuals, in opposition to Mr. Darwin, who refers to the strongest and fittest that power of reproduction. Mr. Quaritch considered that the theories of those two gentlemen would not be found upon close inspection to differ very materially, although Mr. Howorth had exaggerated his case by selecting the plant grown on poor soil, and the under-fed, delicate man, or other animal. It is really the hardy plant, as dis-

tinguished alike from the finest and showiest and the puniest and weakest, which best propagates its kind. And it is also the hardy human pair, in most cases underfed—that is, subsisting upon a minimum of food—which reproduces our own species. The fact is such, not because the hardy individuals are in a condition of so-called semi-starvation, but because the struggle for existence has steeled their frame, and a rigorous abstemiousness precludes any of those unnecessary outgrowths—the result of a more generous diet—which weaken the body and require to be fed. Nature will most readily propagate species under conditions in which its laws are most closely followed; and it cannot be doubted that the reproductive power lies in the healthiest and strongest individuals of every kind—not in the finest-looking, nor in the weakest. Over-feeding and starvation are punished by disease and death. Rich living induces an imposing show of health; but it is extreme frugality which bestows a maximum of procreative power. Mr. Quaritch repeated his opinion that Mr. Howorth and Mr. Darwin differed in little more than words, their facts and real conclusions being similar.

After a few remarks by the President, Dr. King, Mr. Charlesworth, and Captain Burton,

Mr. HOWORTH replied. He said the discussion has been chiefly one about terms, and has not met the points raised by the paper. The author does not contend against the notion that the fittest forms of life for surviving survive. This is a truism which every natural philosopher from Aristotle downwards would willingly admit; and the grave fault of most Darwinians is to mistake this identical expression for Mr. Darwin's position. Mr. Darwin's concrete examples of this law furnish grounds for criticism; and it is these concrete examples that were chiefly attacked in the paper. Mr. Darwin contends that among a number of individuals struggling for existence the strongest, or the most crafty, or the most enduring, elbow out the weakest, etc., by monopolising the food and other resources which are necessary to life. The object of this paper is to show that those individuals who succeed in obtaining more food, and in monopolising those resources, are condemned by some higher law to comparative sterility, while those that are weakly and sickly and ill-fed are endowed with a corresponding degree of fertility. So that there is a constant fight going on against the increase of the well-fed and the prosperous, instanced by such examples as the wild cattle at Lyme Hall, in Lancashire, which have gradually decayed and become sterile under conditions of plentiful food, etc., etc., while the kyloes in the Highlands are just as fertile. In this we have only a generalisation of the fact pointed out by Mr. Doubleday in answer to Malthus, and which I take to be a most complete answer to that philosopher. Mr. Darwin, as he himself says in his work, merely extended and amplified the conclusions of Malthus until they included the whole animal and vegetable creation, and the author of the paper similarly extended the conclusions of Mr. Doubleday. Sir John Lubbock said that the author had mistaken fat for vigour, and over-feeding for good health; but this is hardly a fair way of describing the ex-

amples quoted in the paper. It can hardly be said that the population of Ireland during the famine, that of the Western Highlands now, the condition of consumptive and sickly people, of sickly and decrepit animals like sheep, etc., etc., all of which were cited as typical instances of fertility, are also instances of animals in a normal state of health. That ringing a pear-tree, and reducing cacti, orchids, etc., to the point of death to induce them to bloom and bear fruit, is to mitigate the effects of over-feeding. The very essence of Mr. Darwin's argument is that those individuals which get more food by any means, or struggle into stronger and more vigorous life by any means, have an advantage in the struggle for life which ends in their elbowing the others out of existence, and that it is these forms that survive. The paper endeavoured to prove, and in the author's opinion succeeded in doing so, that these forms fail to reproduce themselves in the manner that less favoured forms do, and have a tendency to die out. In regard to particular objections, the reference to seeds that have been kept some time was not meant to apply to those mythical examples of the Egyptian wheat, etc., which have been long ago exploded, but to the common-place experience of gardeners, who find the seeds of melons, cucumbers, etc., which have been kept a year or two, germinate more certainly than freshly-gathered seed. Reference was made by one speaker to hereditary habit inducing a more fertile breed, and also producing the cases so common in the upper classes of mothers who cannot suckle their offspring; but this cannot apply to the Maories and Red Indians, with whom the delicate notions of our philosophers are not received. The author could not see any analogy between blind people hearing and smelling more acutely than others (no doubt due to the necessity of exercising those senses more freely) and the fertility induced by deprivation of food or harsh circumstances. Nor could he allow with the same speaker that the poor are very thankful for many children, the children being a source of profit rather than otherwise. This fallacy has been exposed by the recent Royal Commission upon infanticide. One gentleman asked if the poorly-fed were long-lived as well as fertile; the test that the author urged was not the longevity of individuals, but the increasing numbers in each generation in different areas. Thus Ireland and China were increasing their populations at a very rapid rate under conditions very adverse, according to Mr. Darwin's extended reading of Malthus, while Sweden, South America, and Turkestan, were remarkable examples on the other side.

The meeting then separated.

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MARCH 4TH, 1872.

GEORGE HARRIS, Esq., V.P., *in the Chair.*

THE Minutes of the previous Meeting were read and confirmed.

CHARLES F. TYRWHITT DRAKE, Esq., F.R.G.S., was elected a Member.

The following presents were announced, and the thanks of the meeting voted to the respective donors:—

FOR THE LIBRARY.

From the ASSOCIATION.—Transactions of the National Association for the Promotion of Social Science, 1871.

From the EDITOR.—The Journal of Psychological Medicine, vol. vi, No. 1, 1872.

From the EDITOR.—Matériaux pour l'Histoire Primitive et Naturelle de l'Homme.

From the EDITOR.—La Revue Scientifique, Nos. 35 and 36, 1872.

From the MANX SOCIETY.—Records of the Tynwald and St. John's Chapels, Isle of Man.

From the SOCIETY.—Proceedings of the Royal Society, No. 131, 1872.

From the AUTHOR.—Recherches sur les Fontanelles Anomales du Crane Humain; Coup d'Œil sur l'Anthropologie du Cambodge, by Dr. E. T. Hamy.

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The following paper was read:

ANTHROPOLOGICAL COLLECTIONS *from the* HOLY LAND. No. III.

NOTES on the HAMAH STONES, with REDUCED TRANSCRIPTS.  
By Captain RICHARD F. BURTON, F.R.G.S.

I VISITED Hamah between February 28th and March 5th of 1871, and my first care was to inspect the inscriptions, as Mr. Walter Besant, M.A., Secretary of the Palestine Exploration Fund, had asked me to do in his letter of December 7, 1870.

The stones were noticed as early as A.D. 1812. Burckhardt ("Travels in Syria," p. 145) says of them: "In the corner of a house in the Bazar is a stone with a number of small figures and signs, which appear to be a kind of hieroglyphical writing, though it does not resemble that of Egypt." They remained in obscurity till 1870, when Mr. J. Augustus Johnson, of New York, Consul-general for the United States at Bayrut, and the Rev. S. Jesup, of the Syrian Mission, remarked them while looking through the Bazar of the old town. The former presently printed, in the "First Statement of the Palestine Exploration Society" (No. I,

July 1871, New York, published by the Committee), a reduction from a facsimile of No. 4 inscription—that noticed by Burckhardt, and still embedded in a wall near the bridge. The latter also “endeavoured to purchase a blue (basaltic) stone\* containing two lines of these strange characters, but failed to obtain it, because of the tradition connected with and the income derived from it. Deformed persons were willing to pay for the privilege of lying upon it, in the hope of a speedy cure, as it was believed to be efficacious in spinal diseases.” I heard nothing of this superstition.

A certain Syrian Rayyah, of the Greek orthodox faith, named Kostantín Khuri bin Daud, made sundry transcripts of the inscriptions, and a copy was deposited with Dr. Bliss, President of the (U.S.) Syrian Protestant College at Bayrut. Here they were inspected by Messrs. Tyrwhitt Drake and Palmer, the latter then acting under the (English) Palestine Exploration Fund, before their return to England in September 1870. Herr Petermann published some details concerning the inscriptions in the *Athenæum* (No. 2267) of April 8, 1871. In March 1871 I bought from Konstantín the originals of the copies possessed by Dr. Bliss, and I proposed sending them home to the Secretary of the Anthropological Institute, when Mr. Tyrwhitt Drake apprised me of his intended return to Syria with the object of photographing and “squeezing” the stones. He set out for Hamah on June 13, and on June 24, 1871, he brought back good “squeezes,” and sun-pictures which were not wholly successful. I believe that his second visit gave better results, and he also found a similar inscription at Aleppo.

The local Dryasdust, Kostatín el Khuri, had not visited the country to the east of that venerable town, Emesa (Hums), and he had only heard of the interesting region on the north-east known as the 'Aláh (ألا) or “upland.” The extent may be roughly laid down as two days' riding west-east towards the Euphrates, and from Salamiyyah, the *avant-garde* of the Palmyrene, on the south, to six hours north of Mu'arrat el Hu'màn, on the Aleppo-Damascus road. Here, according to tradition, although our maps inscribe the region “Great Syrian Desert,” are some three hundred and sixty villages—a favourite popular number—almost all, if not all, in ruins. I was able to visit only four of them. Their stone-built floors and ceilings, with monolithic doors, shutters, and rafters of basalt, reminded me of the “Land of Bashan,” that is to say, the Leja and the Hauran valley and mountains. Two ruins showed sundry large clean-cut and raised inscriptions, with crosses which suggested their origin. It is not

\* The term may remind us of the “blue stones” of Stonehenge, which differ from the others, and which were brought, it is supposed, either from Cornwall, or preferably from Ireland.

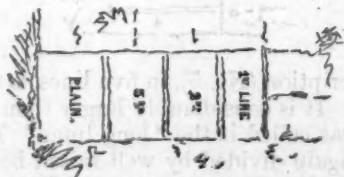
a little curious that in this section of the country, lying east and west of the Orontes valley, many inscriptions are found in cameo, not incised, as is the general rule of Syria and Palestine; thus perpetuating the style of the Hamah Stones.

It was at first my intention to employ Kostantín el Khuri in copying these monuments. He proved himself, however, so ignorant, leading me a long way to see a Hebrew inscription which proved to be Kufic, so greedy of gain, and so untruthful a *Graculus esuriens*, that I was compelled unwillingly to abandon the project. Although Mr. Tyrwhitt Drake has successfully accomplished his somewhat perilous task of exploring the 'Aláh, the country east of Hums still awaits a reconnaissance.

The ten sheets accompanying this article had been applied to the blackened or reddened faces of the four Stones, one of which has, it will be seen, a double inscription; and the outlines were afterwards drawn with a reed pen. In a few cases the fancy of the copyist had been allowed to run wild: these vagaries have been corrected. The size of the facsimiles shows, *cetera va sans dire*, that of the Stones.\*

The material of all four is compact black basalt, polished as if by hard rubbing. The characters are in cameo raised from two to four lines, separated by horizontal framings, also in relief: they are sharply and well cut. The first thing which strikes the observer is, that they must date from the metal age, and that they are the work of a civilised race. No Bedawi would take the trouble to produce such results, nor, indeed, has he any instruments which would answer the purpose. I proceed now to a short description of each stone.

No. 1 (three lines) is in the north-western or Christian quarter of Hamah, known as the Hárat el Dahhán (of the Painter). The house (No. 23) belongs to one Sulayman el Kallás (the Lime-burner), and it is tenanted by Khwájah Jabbúr el Nasrani. The stone stands, or rather lies, on its side in the eastern wall facing the front impasse: it is close to the left jamb of the doorway to one coming out of the tenement, and the height of the lower margin is five feet from the ground. Under the three lines is a plain surface, and the general appearance of the stone is shown by the accompanying sketch.



\* They have here been reduced to quarter size.

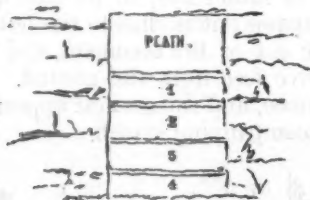
No. 2 (two lines) is lying in the lane called Darb Tak el Tahun (Road of the Arch of the Mill), that runs south of the same garden. It is a roughly-shaped block of basalt, with more length than breadth or thickness, and presenting this appearance :



No. 3 (three lines) is in the orchard or so-called "garden" of Sayyid Umar bin Hajj Hasan, a little to the west of the ruined Bab el Jesr, the gate at the southern end of the third bridge which spans the Orontes, the whole number being four. This tablet is built up with common stones around it, close to the ground, in the northern face of the southern wall, whose upper part is of unbaked brick. It is remarkably well and sharply cut, with long raised lines separating as in No. 1 the three rows of writing.

No. 4 (total, nine lines) is at the north-west corner of a little shop belonging to Mohammed Ali Effendi, of the great Kilani house, the Emirs descended from that archmystic Abd el Kadir el Kilani. Its site is the dwarf Bazar, a few paces from the west end of the Jisr el Tayyarah, also called Jisr el Shaykh, the second of the four bridges beginning from the south. It is easily found: fronting it to the east is the Hauz or tank belonging to the small Jami (Mosque) el Nun, and it is within a few paces of the French Vice-consulate.

This stone, unlike the others, shows two inscribed faces. To the north, where its breadth is least, appears inscription No. 4 (four lines), with the upper part plain, after this fashion :



The other inscription (No. 5), in five lines, is upon the western side of the wall. It is considerably larger than the other; hence the transcriber has called it the "long lines." The five compartments are here again divided by well-raised horizontal ribs, and the lower row of characters is not so easily read as its neigh-

hours. The upper line also does not cover more than half the breadth of the stone.

Besides obtaining photographs and facsimiles, it would, I believe, be highly advisable to secure the stones, and Nos. 1 and 3 might be bought at a reasonable price. But this will require a Vizierial letter, intended to be obeyed, and not like the tons of waste paper issued during the reign of the late 'Ali Pasha. A direct order will at once enable the Governor-general of Syria to take the stones from their owners, paying just compensation, and to send them out of the country. When at Hamah I began to treat with the proprietor of No. 1, the Christian Jabbûr, who, barbarously greedy like all his tribe, began by asking a hundred napoleons. And if the purchase of the stones be judged advisable, the less said or written about them, on the spot at least, the better, as they may share the fate of Mesa's Stèle.

I borrow the following notice of the stones from Mr. Johnson's notes before alluded to :

"We should naturally expect to find in this vicinity some trace of the Assyrian and Egyptian conquerors who have ravaged the valley of the Orontes, and of their struggles with the Hittites on this ancient battle-field, and of Solomon, who built stone cities in Hamath (II Chron viii, 4), of which Palmyra was one. But we find nothing of the Palmyrene on these stones. The arrow-headed characters are suggestive of Assournasirpal. In the inscription on the monolith of Nimroud, preserved in the British Museum, in relating his exploits 915 B.C., he says: "In this time I took the environs of Mt. Lebanon. I went towards the great sea of Phœnicia. . . . I received tributes from . . . Tyre, Sidon, &c. . . . They humbled themselves before me.' And a little later, 879-8 B.C., Salmanazar V says: 'In my 21st campaign I crossed the Euphrates for the 21st time; I marched towards the cities of Hazael, of Damascus. I received the tributes of Tyre, Sidon, and Gebal.'

"Until the interpretation of these mysterious characters shall be given, a wide field is open to conjecture. Alphabetic writing was in use 1500 B.C., but the germs of the alphabetic system were found in the hieroglyphic and hieratic writings of the Egyptians upwards of 2000 B.C. Some of the attempts at picture-writing on these Hamath stones suggest the Egyptian system, which consists of a certain number of figures to express letters or syllables, and a vast number of ideographic or symbolic forms to represent words. Other characters represent Phœnician letters and numerals not unlike the Phœnician writing on the foundation stones of the Temple at Jerusalem, recently deciphered by Dr. Deutsch of the British Museum.

"In framing their alphabet the Phœnicians adopted the same

process previously employed in the Egyptian phonetic system, by taking the first letter of the name of the object chosen to represent each sound; as, A for aleph (a bull); B for beth (a house); G for ghimel (a camel): in the same manner as the Egyptians represent A by an eagle, *akhem*; M by an owl, *mou-lag*, &c.

"Some scholars have designated Babylonia as the true mother of the characters employed in very ancient times in Syria and Mesopotamia. And it appears that, besides the cuneiform writing found on Assyrian and Babylonian monuments, a cursive character was also employed identical with the Phœnician, and therefore possibly borrowed by the latter. Kenrick, however, remarks on this theory, that the occurrence of these characters only proves the intercourse between the two people, and not that the cuneiform was the parent of the Phœnician. We have in these inscriptions of Hamath a *mélange* of all three, and perhaps a connecting link between the earliest systems. To suppose them to be bi-lingual or tri-lingual only increases the difficulty of interpretation in this case, for there is not enough of either to furnish a clue to the rest.

"The 'Carpentras Stone' contains an analogous inscription; it comes near to the Phœnician, and has been thought to present the most ancient specimen of the Aramean series. This and the Palmyrene writing form the links between the coin characters and the square characters, and are supposed to represent a language in a state of transition. That the Hebrews borrowed the use of writing from Mesopotamia or Phœnicia has been universally admitted; and according to Gesenius the old form of their writing was derived from the Phœnician, and retained by the Samaritans after the Jews had adopted another character of Aramaic origin.

"Now, may it not be that in these Hamath inscriptions we have fallen upon a transition period, when the Phœnicians, or their predecessors in the land, were using the elements of writing then in existence, and before the regular and simple Phœnician alphabet had been perfected?

"The 'Carpentras Stone' has been considered by Gesenius to have been executed by a Syrian of the Seleucidian period. The 'Rosetta Stone' dates back to 193 B.C. The characters on these stones have much in common with those of Hamath. Champollion's 'Key to the Hieroglyphics' will be of aid perhaps in solving the present mystery. But we shall be surprised if the inscriptions of Hamath do not prove to be older and of greater interest than any recent discovery of Egypto-Aramean or hieroglyphic characters."

Dr. Eisenlohr, Professor of Egyptology at Heidelberg, in a letter

asking permission to publish these inscriptions, writes : " Though I believe we are at present not able to give a translation of them, I am still persuaded they will be of the highest interest for the scientific world, because they are a specimen of the first manner of writing of the people of that country."\*

My conviction is, that the Hamah inscriptions form a link between picture-writing and alphabetic characters ; and I would suggest that the most feasible way of deciphering them would be by comparing them with the "Wusùm" (وسوم) of the several Bedawi families, tribes, and clans. These marks are still branded on the camels, and are often scrawled or scratched upon rocks and walls, as a notice to kinsmen that friends have passed that way. I need hardly say that the origin of "Wasm" is at present unknown ; it doubtless dates from the remotest antiquity, and it has probably preserved the primitive form of the local alphabets. For instance, the Anezeh mark is the circle ; and this we find, to quote only two instances, representing the 'Ayn (eye, fountain, "eye of landscape") in the Asmunazar or Sidonian epitaph and in the Phœnician, or rather Canaanite, characters of the Moabite stone.

Again, the circle is shown on the sculptured stone of New Grange, and in the ornament at Howth (figures 68 and 71, Fergusson's "Rude-Stone Monuments ; London, Murray, 1872). Captain Warren (p. 148, "Palestine Exploration Fund," No. IV, December 31, 1869) saw the signs ♀ and Δ upon the pointed archway of Sabbah, the ancient Masada ; he also saw the former symbol upon the flanks of the Fellahin camels, and he "believed it to be a Bedouin mark for the district (?) or tribe. In Spain there are marks peculiar to districts and families, and the horses are all branded with them, just as we mark our sheep ; and the camels here appear also to be branded according to their tribes or owners". Other Eastern travellers must have collected hundreds of these "Wusùm," and were the want made known, we might soon produce a volume of lithographs, which would not only supply a special want, but also prevent future writers confusing, as lately done by more than one, Bedawin brands with "Naba-

\* I cannot, however, believe, with Mr. Johnson, that the bas-reliefs on the monument called Kamu'a Hurmul (the column of the Hurmul village) can date from the same period. The people declare that it was built upon a basaltic mound to denote the source of the Asi or Orontes ; we (that is, Messrs. Tyrwhitt Drake, Palmer, and I) thought it the tomb of some hunter : our reasons being that 1, there are no inscriptions ; 2, the rude alt-reliefs on the four sides represent weapons, and wild beasts wounded in the act of flight ; and 3, the solid three-storied building is near the ancient Paradisus (waddi-saras, or hunting-park), identified by Dr. Robinson with the ruins at Juayyat el Kadimah. Mr. Porter's "Five Years in Damascus" represents the solid square structure as it stood some twenty years ago—now the southern side has fallen to ruins, and the pyramidal capping will soon follow.

thæan characters." Messrs. Tyrwhitt Drake and Palmer neglected no opportunity when mapping the Sinaitic Tih or Desert of the Wanderings, and I have also been able to fill up sundry pages of note-books.

"Hamah of the Asi," or Orontes, the Hamath of Scripture (חמא, *arx*; *munimentum*, e.g., Hamath Soba, or Zobah),\* was the capital of a little kingdom at the period of the Exodus. Its king, Toi, yielded allegiance to David (II Sam. viii, 9); it was called "great" by Amos (vi, 2), and was, we have seen, ranked by an Assyrian monarch with the most important of his conquests. Originally inhabited by the Canaanites (Gen. x, 18), it is frequently mentioned as the northern border of the Land of Promise, although it has as yet formed no part of the "Holy Land." Every guide-book will tell how, under the name Epi-phanæia, it became famous in the days of the Seleucidæ, and how Seleucus Nicator, founder of Apamea (Kala'at el Muzik, kept his stud of five hundred elephants and thirty thousand brood-mares in the rich lands which the twin curses of Syria, the Bedawin and Misrule, have converted into the Great Syrian Desert; how subsequently it became, as it is now, a bishopric; and how, under the Moslem rule, it produced (A.D. 1743) the celebrated savant Abû 'l Fida (Abulfeda), Prince of Hamah, the worthiest scion of the Kilani house.

If Nablus occupies the most beautiful, Hamah certainly owns the most picturesque of sites in modern Syria. It has a cachet peculiarly its own, yet the general aspect of the valley somewhat suggested Bath. And it has its own sounds. Here the traveller hears for the first time the Na'ûrahs, those gigantic under-shot box-wheels, one of them said to be forty metres in diameter, which, creaking and groaning night and day, continually raise the waters of the Orontes from their deeply-encased bed to the level of the houses and the fields, and which serve adventurous gamins as merry-go-rounds. Each aqueduct and wheel, the latter built up of infinite piece-work, and with axles playing upon the summits of masonry triangles, has its own name—for, instance, El Mohammediyyah, mentioned by Burckhardt in 1812; and each is the property of a (very) limited company.

The situation of Hamah is a gorge-like section of the Orontes (Asi) Valley, which, sweeping from the south-east, winds off to the north-west. The highest part of the city is on the south-east; here El Alaliyât ("Les Hauteurs") measures 140 feet

\* We find the name again in Amathus of Cyprus and Laconia. It must be remembered that the Talmuds, the Targums, and the ancient Syriac version of the Old Testament all explain Hamath by Antioch—a city which must have had a name before conquered by Alexander. The northern "entrance to Hamath" would be *viâ* Seleucia.

above the stream. There are four other elevations: 1, the Castle-mound to the north; 2, the Báshurá quarter, north-east; 3, Shaykh Ambar el Abd, above the left bank of the stream; and 4, Shaykh Mohammed el Haurani, a continuation of the older and much larger river-valley. The ancient city has no walls, and few gates; and the orchard separating the various cemeteries and the clumps of cottages into thin dwarf conical domes, make it a veritable oasis: the Bedawin, however, have long ago destroyed the once celebrated oliveta of the neighbourhood. Four bridges span the stream, which at this season (March) is coloured *blond de Paris*—that is to say, dirty yellow. Three have parapets; all have rough and uneven floors, and mostly they rejoice in Saracenic arches of different sizes and shapes, here and there zebra'd with white and black stones (lime and basalt). The second from the south is the Jisr el Shaykh, or El Tayyarah, the “flying,” possibly so called from the Palace of Harun el Rashid at Baghdad. At the end, upon the right bank, rise the mansion and quarter of the Kilani Emirs; the tall walls stained with dirt and green mould poorly represent the “very fine palace” of Pococke’s day. The visitor will find much to admire at Hamah in the lofty and peculiarly graceful minarets, the perfection of lightness married to strength, which, numbering twenty-four, vie with the larger cupolas in adorning the sky-line. They usually consist of three sections: the finial; the balcony, with wooden awning against sun and rain, applied upon a smaller shaft; and the main body, a tower of larger dimensions. The most remarkable are the Mádnahs of Bab el Hayyah, of Khizr (El Maksúrah, and of the Suk el Shajarah: the model is that of the Jámi’a el Kabir, or Cathedral Mosque. It consists of the following structures, and the dwarf buttresses, or rather bevels, that break the basal angles, refer it to the days of Sinán Pasha, when architectural taste had not wholly died out of El Islam:

An urn-like domed finial of solid (?) stone.

Cornice and pendentives.

Eight light pillars and ties.

Smaller octagonal shaft.

Flat-topped wooden awning.

Larger octagonal shaft.

Three archlets sunk in each face of shaft.

Rose-light between two horizontal bands of black stone.

Plain circular light between ditto.

Base of octagonal tower.

The traveller will do well to visit the splendid saloons of Muayyad Bey, son of the Sherif Pasha who fought the French in Egypt. The hideous dome contrasts strangely with the in-

terior; such a mixture of Persian writing, painting, and gilding, with granite pillars, porphyry, marbles of all colours, and infinite variety of decoration, all gorgeous in the extreme, but tasteful, from the admirable proportions in which colours apparently discordant are made to blend, he will not see even at the capital. An architect might fill a small volume with the beautiful geometrical intricacies which everywhere meet the eye, and his study would add not a little to our northern ideas of ornamentation.\*

A local curio is also to be found at the Jâmi'a el Hayyah, whose variegated dome rises conspicuously from the large cemetery in the Khan Shaykhun road at the southern extremity of the city. It derives its name, "Mosque of the Snake," from a block of the purest white marble, forming plain double capitals and bases, whilst the highly-polished shafts have been twisted into cables, writhing, as it were, in imitation of two huge boas locked in the closest embrace. I tried, but in vain, to buy this gem—it was "church property." A similar *tour de force*, but not so large nor so perfect, is found in the Mihrab, or praying niche, at the south-east angle of the Jâmi'a el Aksa at Jerusalem, and I lately saw a sketch of it, by the Rev. J. Niel,† at the rooms of the Palestine Exploration Fund.

One of the most interesting parts of modern Hamah is the Castle-mound, whose green feet approach the left bank of the "Rebel River." Like that of Hums, it probably served for a Sun-temple; but it has suffered even more severely from time and man. The hillock is evidently natural; a core of chalky rock is suggested by the silex and the agates which bestrew the summit. Naked stone also appears in parts of the scarp and counterscarp. To the east and south the material stands up in dwarf cliffs showing artificial strata of different colours, formed by charcoal, strews of pebbles, broken pottery, and other rubbish. The terrepleine was prepared for supporting the fane by layers of earth to which ruins have added; it is still tolerably regular, except where the people have dug into it for materials. The Saracens probably rivetted the slopes with an armour of stone, which has almost entirely disappeared in building and rebuilding the venerable city. The length of the oval summit from north

\* In consequence of a suggestion by Mr. D. F. Crace, I made careful inquiries at Damascus from the books of patterns, coloured and plain, which contain the models still used by house decorators. It is believed that upwards of three hundred different arabesques are to be collected. Unfortunately we were obliged to leave Syria at the very beginning of my search.

† "Palestine Exploration Fund", No. iv, p. 176. But why the reverend gentleman should call the pillars "Solomonic twisted pattern", I cannot guess. Did Solomon invent any masonic patterns or orders of architecture?

to south is 350 paces; the shorter diameter from east to west measures 250, and the height (by aneroid) is 90 perpendicular feet. The green sides of the rain-seamed mound have not yet assumed the natural angle: here and there they are *bombés*; and whilst the talus in many parts measures 60 deg., at the south-east it is almost vertical. The lower folds, as in the mound at Hums, fall into a fosse which in olden days could probably be swamped by means of conduits; now the broad expanse is cultivated, like the grounds around the temple of Ba'albak. The main entrance was at the eastern fort, and here the rocky counterscarp was cut to resemble the buttresses of a bridge: in the scarp appears a silo, shaped like a soda-water bottle. The path winds easily up to the left; on the southern side there is another track, but this is steeper and less used. I need hardly suggest here, as at Hums, the necessity of a few shafts and tunnels.

The Hamathites have gained for themselves a very bad name in the guide-books. "They are haughty and fanatical, living in entire ignorance of the world beyond their own little sphere". The fact is that they are somewhat unused to the visits of strangers, and the turban, especially the green turban, still expects the hat to make way. Fortunately for me, my friend, Abd-el Hadi Pasha, an honest and honourable man, was occupying the Serai, and he assisted me through the little "difficulties." On the day after my arrival, a crowd assembled near the bridge to see me compare Kostanin's facsimile with inscription No. 4, and two men who behaved rudely, refusing to "move on," soon found themselves *au violon*. The red-cloaked owner of No. 2 stone also charged me with entering his garden, where women might, as is the custom, have been walking about unveiled. I asked him if it was the practice of his family to leave the gate wide open on such occasions—an innuendo which brought the blood to his pale face—and a reference to the Mutasarrif (Governor) soon settled the question. Beyond this I met with no incivility from the people. It must, however, be confessed that much of their good treatment was owing to my host, the excellent M. Fazli Bambino, Vice-Consul de France for Hums and Hamah, whose energy and *savoir faire* have given to the European name an importance before unknown to it in these regions, and who is distinctly not one of the "time-servers that write home their semi-annual reports, glossing over everything unpleasant to the official ear, and carefully omitting to mention the many opportunities they have missed of doing their duty". M. Bambino's nephew, Prosper Bey, soon showed me all that was worth seeing at Hamah, and guided me during a day's exciting-ride over the outskirts of the Aláh.

The population of Hamah is laid down by Mr. Johnson, probably from Murray, at 30,000 souls. They own to 38,000 or 40,000, and I believe the number to be nearer 45,000. Of these some 10,000 are "Greeks"—that is to say Fellahs belonging to the Greek Orthodox Church under their Matrán (Metropolitan), Jermanos. The Jacobites range from 200 to 300; there are two or three Syrian Roman Catholic families, who "sit under" their priest, Khuri Mikhaíl. The French colony, including dragoons and all protected subjects, amounts to a total of thirty-nine souls, of whom two are settled in the "Mountain" (Jebel Kelbiyyah). The Christian quarter in the south-western part of the city is the most filthy and miserable of the twenty-four "Hárát." As a rule the Nazarenes are poor; one man owns 200,000 francs, another 100,000 francs, and two others have 100,000 piastres. The Jews have entirely disappeared, leaving only a cemetery, which is also rapidly disappearing. The Moslems, therefore, number at Hamah more than three-quarters of the population. They boast of three great houses. The highest is the Kiláni, above alluded to: at their funerals all the names of their ancestry are recited, after the fashion of Dahome. The chiefs of this family are the Mufti Shaykh Sujjádát el Kádiri and Shaykh Mohammed el Azhari. From a visit to the tent which some of the juniors had pitched on the hill of Zayn el Abidin, I judged that this *jeunesse dorée* had no absolute dislike to a guitar or to a glass of strong, very strong, waters. Second rank the Meccan Sherifs; and third the House of Mullah Khunkhwar of Kuniah (Iconium). I may end these notes on Hamah by saying that my visit took place during the Id el Kabir, or greater festival—a season when fanatical Moslems are apt to become extra-fanatical.

And now, Mr. President and gentlemen, I would again express my gratitude for the kindness and courtesy with which you have allowed me to read and print this somewhat lengthy *catalogue raisonné*, and to hope that you are not disappointed by the efforts of your representative in Syria and Palestine during the last two years. You will charitably remember that it was mainly a labour of love, undertaken amidst a variety of occupations, interrupted by business of a public as well as a private nature, and intended chiefly to supplement the geographical studies and explorations which occupied the greater part of my spare time.

In conclusion, I offer my thanks to my brother members of the Anthropological Institute who have enriched these papers with their valuable notes and illustrations; especially to Dr. C. Carter Blake, to Professor Busk, to Mr. John Evans, and to Mr. Augustus W. Franks. My friend Mr. J. F. Collingwood has also laid me under a heavy load of obligation by the energy and heartiness with which he has invariably assisted me.

The following notes were read.

1. DESCRIPTION of REMAINS from SILOAM. By C. CARTER BLAKE, Doct. Sci., F.G.S., Hon. Mem. A. I., Lecturer on Comparative Anatomy, Westminster Hospital.

ANY remains which are brought from the "by no means prepossessing"\* locality of Siloam must be of interest to the student of Shemitic tradition. The present reliques deserve our careful examination.

1. Calvaria, comprising frontal and fractured parietal bones of a large ovately dolichocephalous individual. The frontal bone is equably arched and vaulted; the frontal bosses being large. There is a slight annular post-coronal depression, due (as Foville has pointed out) to the custom of swathing the head of the child tightly after birth. The coronal suture is deeply denticulated. There is a slight parietal exostosis, concomitant with enlarged Pacchionian depressions on the internal table. The superciliaries are small, and the external angular part of the frontal bone is flattish. The bones of the cranial vault are thin and delicate.

2. Frontal bone (in two pieces) of a large dolichocephalous individual. The supraciliary ridges are slight; the foramen converted into a notch on the left side. The orbital *vaults* are wide and lofty.

3. Mandible of a powerful adult, with second molar on right side, and third and second molars, and second premolar in place, on left side. The third premolar on both sides has been shed during life. A large diastema exists between the second and third molars on the left side. The incisor teeth have been very small and delicate. The coronoid process is high, and its forward curve, as in some Andaman islanders, is prominent. The attachments for pterygoid muscles are strong; the mentum is prominent and mesepicentric.† The fangs of the premolar teeth have been large and deep; the angle is turned outwards. The molar teeth have been much larger than in the next specimen; but otherwise there is nothing to infer that it possessed more negroid affinity than does the Shemitic race generally.

4. Mandible of an aged individual of eurygonic form, with second and third molars in place on left side, showing much erosion, but of the size common in all non-negro races. The coronoid process is high and slender, the sigmoid notch consequently deep. The attachments for the pterygoid muscles well marked, and the angle prominent. The mylohyoid groove deep. The genial tubercles are not large. The first molar on the right side has been shed during life. The mentum is prominent.

\* Dr. Thompson, "The Land and the Book", pp. 359-60.

† "Anthropological Review", vol. v, 1867, p. 296.

5, 6, 7, 8, 9. Fragments of parietal and occipital bones, probably referable either to skull 1 or skull 2.

On account of the broken condition of these bones, I do not attempt measurements. An examination of them leads, however, to the conclusion that they appertain to the race which has been called "Jewish" by comparative anthropologists. That this race inhabited the neighbourhood of Jerusalem at the time of the deposition of the present remains is, therefore, a conclusion which rests not on hypothesis or tradition, but on comparison of the osteal evidences now before us.

2. DESCRIPTION of SKULL obtained by M. CLERMONT-GANNEAU from DEIR-ES-SINNÉ, near SILOAM, from one of the graves in the necropolis termed MÁGHÁRA 'ISÁ ("Tomb of Jesus"). By C. CARTER BLAKE.

THE specimen before us is probably that of a small but adult individual, possibly female, and belonging to the (Osmanli) Turkish race. Its turreted aspect gives it some resemblance to the skull No. 1, from Dayr Már Músá el Habashi, and, like it, it has been asymmetrical, the depression having existed on the right side. The forehead is retrocedent in relation with the extreme height of the skull. The orbits are squared and laterally elongated. The nasal orifices are short, and round the nasal bone broad. There is slight maxillary prognathism. The first and second molars on the left side, and the first molar on the right, are in place, and show signs of erosion. The palate is moderately broad, without any excessive depth being shown.

The norma verticalis shows phænozygism; but the zygomatic arches are slight. A large portion of the right half of the cranium has been broken off since death, and at a comparatively recent period. The sutures in the region of the alisphenoid and temporal bones are entirely closed, and the suture is serrated, but not deeply so. The sagittal and lambdoid sutures are in the same condition. The supraoccipital bone is deeply concave just behind the foramen.

It is impossible to estimate the precise breadth of the skull. The length has been 15.5 cent., and the height 10.0 cent.; the proportion of height to length, taking the latter as = 100, being 64.

The race to which the individual belonged was certainly Turkish, and the date of interment cannot be precisely estimated.

3. DESCRIPTION of HUMAN and ANIMAL REMAINS from MARAD SYRIA. By C. CARTER BLAKE.

THE fractured condition of the human remains from Marad pre-

cludes any very precise consideration of their race-characters. They may be comprised as follows:

Skull-pieces .....	37
Vertebrae.....	12
Ribs .....	7
Long bones.....	7
Scapulae and ilia .....	4
Bones of extremities .....	7

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 74

Horn-cores of sheep.....	2
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The bones appear to have belonged to four individuals at least, one of whom was large and robust, and one was a young child of probably about a year old. Some of the parietal bones are rather thick. One of the axis vertebrae is heavily ossified.

It is impossible to arrive at any conclusion as to the race to which these individuals appertained.

The fragments of frontal bone of young Syrian sheep accompanying them appear to be of the same age as the human remains.

#### 4. DESCRIPTION of REMAINS from BASSUS'S TOWER at SHAKKAH. By Dr. C. CARTER BLAKE.

ALL the remains described in the present lot show characters identical with a Græco-Roman race of varying dimensions, and exhibiting various conditions of *post mortem* interment, which have affected the exact measurements of the skulls. They are in an exceedingly fragmentary condition.

No. 1.—This large brachycephalous skull, of which the frontal portion has become detached, shows traces of occipito-frontal flattening on the right side, which has led to the *aplatissement* of the right parietals and the right supraoccipital bone. The sutures being all open at the period of death has led to this abnormal process being more effectual than it would have been in those skulls (*e.g.*, the Louth) in which, the sutures having been closed early in life, the posthumal compression has produced a greater amount of deformation than in the present case. The sagittal, coronal, and lambdoid sutures have been open during life. There is no doubt that the individual was brachycephalous. The frontal bone is round and bombate, the nasal bones having been wide. The supraorbital foramina have been converted into notches on both sides. All the sutures are deeply denticulated, the lambdoid excessively so, and the latter shows traces of at least six large Wormian bones. The supraoccipital bone is small, and beneath the superior semicircular curved line the occiput rapidly curves towards the foramen. This is round and large. There are very slight traces of paroccipital processes

on both sides, and the post-condyloid foramina are deep. The facial bones are entirely absent. The auditory foramen (on the left side) is small, and the mastoids are large. The additamentum mastoidalis is ossified throughout the whole of its course. Although the *post mortem* compression on the right side has been great, it is possible that during life a great flattening of the parietals and occipitals existed, due either to a "suckling-board", or to the natural brachycephaly of the race. The points for muscular attachment on the skull are slightly marked, and it is probable that the individual did not exceed thirty years of age.

No. 2.—Facial bone of young individual with rounded orbits, and exhibiting slight artificial (*post mortem*) depression of the frontal bone on the left side. The facies has been orthognathic. The age of the individual was probably about seven or eight, the second dentition being just descending from the alveoli. This shows in place the two median top incisors, four premolar and molar teeth on each side in position, the last of the series being in the alveolus. The nasal spine has been large. The condition of all the sutures is such as indicates the extreme youth of the specimen.

No. 3.—This very small female skull exhibits the frontal suture entirely open and elevated along its length. The sagittal suture is open as well as the lambdoid, which shows an enormous triquetral Wormian dismemberment of the supraoccipital bone. The temporal is small. The palate is broad and shallow, the molar series having been entirely absorbed in the alveoli. The retrocedent frontal bone slopes rapidly back to the coronal suture, whence the curve is equable to the middle of the sagittal suture, and rapidly falls in an almost vertical line to the inion, beneath the *os incae* above mentioned, and shelves rapidly down to the foramen, which is round. The mastoids are small. The orbits are rounded. The supraorbital foramina have been converted into notches; the canine fossa is almost obliterated. The post-condyloid foramina are large. The nasal bones are large and broad, and the surface for the attachment of cartilage has been great. The skull has been immersed in soft humal mud, a large portion of which is adherent to it.

No. 4.—The posterior portion of a very large cranium, broken off a little in front of the coronal suture, and probably having been brachycephalous. The proportions generally accord with those of No. 3, though the skull is much larger. This character is very distinguishable on the posterior surface of the parietal and occipital bones, which are asymmetrically flattened, the greatest depression being on the right side. There is a slight paroccipital process on this side. The condyles are proportionately small, and the foramen magnum is rounded. There has

been a large triquetral bone cutting off the upper half of the supraoccipital, due no doubt to the use of the "suckling-board" in youth.

No. 5.—The fractured frontal bone of a young individual, in which the frontal suture has been to a great extent retained, and showing open and large frontal sinuses. The orbits have been rounded. The nasal bones are produced forwardly, and the forehead is fairly bombate.

No. 6.—In three pieces. This portion of a brachycephalous cranium is much eroded and worn. The frontal bone is in a very shattered condition, the supraciliaries having been large, but broken away. The lambdoid suture is the only one which can be said to be partially open, and deeply denticulated. The superior semicircular curved line is large, and the inion prominent.

The skulls from Bassus's Tower are both male and female, and undoubtedly belong to one race, and probably to one family.

No. 7.—Right femur, measuring 44 centimètres.

No. 8.—Right femur, measuring 42 centimètres.

No. 9.—Left iliac bone.

No. 10.—Twenty fragments of parietal and other bones of great thickness.

No. 11.—Calcaneum, probably female.

From the monastery at Shakkah are derived three specimens:

A. Hyperostotic frontal bone of great thickness and weight, with prominent nasal bones and large orbital elevations. The forehead has not been unusually depressed.

B. Frontal bone, fragmentary on right side, with large frontal sinuses. The bones are thick, dense, and highly polished. The individual was smaller than A.

C. Supraoccipital bone very thick and dense, probably belonging to the individual numbered A, with whose character it agrees. The superior semicircular curved line is large and produced, and the occiput has been shelving. The lambdoid suture has been deeply denticulated.

All these bones contrast, in their osseous condition, very much with those from Bassus's Tower.

	A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.
	Internal capacity.	Circumference.	Fronto-occipital arc.	Internasoid arc.	Length.	Breadth.	Height.	Length of face.	Breadth of face.	Prop. of breadth to length.	Prop. of height to length.
No. 3 .....	..	46.0	32.5	36.0	16.3	13.8	10.3	..	11.7	90	6.7
No. 4 .....	..	..	..	40.0	..	14.7	10.5	..	..	..	..

## 5. DESCRIPTION of REMAINS from YABRÚD. By C. CARTER BLAKE

## PART I. CAPTAIN BURTON'S COLLECTION.

ALL the equably ovoid skulls contained in the present collection appear to appertain to one race, and that one which presents the modern Syrian type of skull.

*No. 1.*—A large high dolichocephalous skull, with very slight superciliary ridges and flattened forehead: the present specimen is more like the young Syrian skull from Palmyra previously described and figured, than any skull which has yet come under my examination from the Holy Land. The contour forms an even curve throughout its whole fronto-occipital length. It is slightly asymmetrical, probably owing to the influences of interment.

The wisdom-tooth on the left side has been shed during life, and the alveolus is absorbed. The foramen magnum is small and round. The palate is rather high and vaulted, especially in its posterior portion. The nasal bones have been forwardly produced, arched, and the nose has been aquiline.

The sutures are all open, the alisphenoido-parietal suture on the right side being smaller than on the left. The coronal suture is very slightly serrated, and the denticulations on the sagittal and lambdoid are not excessive. There are no Wormian bones, nor the slightest traces of jugular eminences on either side. The supramastoid ridge is large and heavy; but although the individual has probably been an adult male, the mastoid processes are small. Supraorbital foramina exist on both sides. The frontal region is large, though the frontal bone is retrocedent. The ridges for the attachment of muscles are not pronounced. The age of the individual was probably about thirty or forty. As the next skulls for description accord closely with it in nearly all its distinctive characters, the description of this first one will nearly suffice for all. The mandible which probably appertains to this skull is low and narrow, the coronoid process being scarcely elevated, and the angle slightly exerted. The condyle being broken away, gives the sigmoid notch a greater appearance of shallowness than is really the case. All the teeth have dropped out since death. The sockets have been small, and those of the molar series are of the size in the Indo-European race.

*No. 2.*—With larger superciliary ridges than skull 1, the present agrees with it in nearly all essential characters. The sutures are all nearly closed, with the exception of the lambdoid. The result has been that the superior portion of the occipital bone above the semicircular line is posteriorly developed. The supramastoid ridges are prominent, and the mastoid processes

large, there being a great depth between the supramastoid ridge and the apex of the mastoid process. The digastric fossae are deep, and cleave the mastoid processes on each side into two portions, each of which shows cancellous structure. There are, however no paroccipital or pneumatic processes. The auditory foramina are large. The palate is shallow and flat. The molar teeth in place are small. The orbits are depressed at their inferior and external margins.

No. 3.—Like the preceding, the present specimen belongs to the "long oval type." The dextral portion of the facial bones has been broken away since death. The bones are slender. The sutures are not deeply denticulated. The mastoid processes are small, and there are very slight paroccipitals. The molar teeth in place are not much worn, and exhibit the characters of the "white" races of mankind. The jugular foramen is largest on the right side, where its size is disproportionately great.

No. 4.—In friable condition, this large quasi-brachycephalous calvaria, with open frontal suture, shows indications of having belonged to a large and powerful male. The sagittal suture is deeply denticulated with large Wormian bone at the confluence of it with the lambdoid.

Skulls labelled Nos. 5 and 6 belong to one person—a young child, with bombate forehead and rounded orbits. The skull has been broken off through the basisphenoid bone. The nasal bones are well developed and arched. The nasal spine is prominent. The parietal bones are smoothly curved to the proboscis, which is much produced. The mastoid processes are very small, and the squamosal bone is small. The alisphenoido-parietal suture is broad.

No. 7.—The three broken fragments of parietal and occipital bones thus labelled do not call for especial remark, other than to note the fact, that they belong to a large adult individual, in whom the sutures have been deeply denticulated.

No. 8.—This fractured portion of calvaria merely comprises the frontal and portions of the parietal bones. The sutures are open. The frontal sinuses have been large, but the supraciliary ridges are not excessively developed. The skull has probably been less dolichocephalous than those previously described from the same locality.

No. 9.—A fragmental calvaria of a young dolichocephalous individual, in whom the frontal sinuses have not been much developed, and the bone is thin. The coronal suture shows a tendency to close early.

	A.	B.	C.	D.	E.	F.	G.	H.	I.		K.
	Internal capacity.	Circumference.	Fronto-occipital arc.	Intermastoid arc.	Length.	Breadth.	Height.	Length of face.	Breadth of face.	Prop. of breadth to length.	Prop. of height to length.
No. 1 .....	..	50.0	36.5	38.0	17.4	14.0	11.0	..	11.2	.80	.63
No. 2 .....	..	52.0	38.5	38.5	18.1	13.8	11.2	..	12.0	.70	.61
No. 3 .....	..	49.0	35.0	35.0	17.2	12.6	11.5	..	..	.73	.68
No. 4 .....	..	..	not	less	than	16.2	..	..	..	..	..
Nos. 5, 6 .....	..	47.0	34.0	..	16.5	12.8	10.0	..	9.6	.77	.60
No. 7 .....	..	..	..	..	..	..	..	..	..	..	..
No. 8 .....	..	..	..	..	..	..	..	..	..	..	..
No. 9 .....	..	..	..	..	..	..	..	..	..	..	..

#### 6. DESCRIPTION of REMAINS from YABRÚD.—PART II. MR. TYRWHITT DRAKE'S COLLECTION.

No. 1.—This large prognathic brachycephalous individual exhibits characters which indicate that it was of probably the Turanian or Turkish (Tatar) race, which occupied a large portion of Syria. The sutures are all open. The coronal is very slightly denticulated, and the sagittal shows signs of a large Wormian bone in its posterior portion. The large supraoccipital bone extends above a markedly-produced superior semicircular line, and stands out as a well-marked *probole* in relief from the rest of the bone. There are no paroccipitals. Traces exist of the original division between the basioccipital and basisphenoid bones. The palate is broad, but not deep, and the molar teeth have all either dropped out or become broken off since death. Oxide of iron has produced a chemical alteration in the dentine of some of the broken teeth yet in place. The supranasal notch is deep, and the nasal bones are curved forwardly. The maxillary bone is prognathic to a very great extent. The orbits are small, and the supranasal foramina have been converted into notches on either side. The surface of the skull around the coronal suture has bulged apparently since death, by the swelling of moist intercranial substance; and there also exists a slight carination along the length of the sagittal suture. The frontal bone is equably bombate. The individual has probably been adult.

No. 2.—A long dolichocephalous skull, which in some of its characters reminds us of the large mecistocephalic skull from Palmyra (No 2), before described. Much more prognathic, however, than the Palmyrene, it possesses the same character of large and long occipital region. The mastoid processes are small, and there are no paroccipitals. The palate is broad and shallow. The teeth have all been broken out since death. The

cerebellar cavity has been large, as is shown even by the inspection of the outside of the occipital bone. The orbits are small and rounded. The temporal squama is unusually flat on both sides.

No. 3.—Smaller than the preceding. The same characters are repeated in it, so that the description of No. 2 will apply, *mutatis mutandis*, to the present specimen. The coronal suture has been early closed. The nasal bones are forwardly arched. Only one tooth, *m* 1, is in place on the left side. There has been broken off a "process of Halbertsma," which has formed evidently a small condylus tertius,\* but the friable condition of the bones has made it impossible precisely to measure the size of this abnormal ossification. The mastoids are small.

No. 4.—This large, almost brachycephalous skull, with prominent inion, differs in type from Nos. 2 and 3, and scarcely accords with that of No. 1. It is difficult to determine its race, and it may have been a mixed breed between the Syrian of Yabrúd and the Osmanli Turk. It may be possible that the present skull may belong to the Jewish race, as it affords no characters contradictory of this conclusion; but, as I have said, it is extremely difficult to predict the precise race to which it belonged. An adult male, the frowning beetle brows of the supraciliary ridges overhanging an aquiline hooked nose, and with an enormous development of the occipital region of the skull, give it a physiognomy at once robust and repulsive. The height of the skull appears comparatively great. The occipital condyles are broken away. The palate is flat and only slightly excavated. The teeth on the right side have chiefly been shed during life. The zygomatic arches are large, though the skull is not phœnozygous. The occipital foramen is large and round, concomitant with the large size and brachycephalous character of the skull. The maxillaries are orthognathic.

No. 5.—Fractured left parietal and occipital bones of a young dolichocephalous individual, with very thin osseous texture. The attachments for the muscles are not marked.

I have not seen the skull, which probably was labelled No. 6, from Yabrúd.

No. 7.—Occipital and fractured parietal bones, right side of a large, adult, brachycephalous man, in whom the bones are remarkably thick and strong. The mastoid processes are large. There are no paroccipitals. The lambdoid and coronal sutures have been entirely obliterated. The processes for muscular attachment are not so marked as might have been expected from a skull otherwise so robust. The tips of the asymmetrical cerebral lobes have projected far beyond the cerebellum.

\* Vide "Anthropological Review", vol. iii, p. 215; and "Journal of the Anthropological Society", vol. v, p. cxvii.

	A. Internal capacity.	B. Circumference.	C. Fronto-occipital arc.	D. Intermastoid arc.	E. Length.	F. Breadth.	G. Height.	H. Length of face.	I. Breadth of face.	J. Prop. of Breadth to Length.	K. Prop. of Height to Length.
No. 1 .....	..	52°5	86°0	39°0	17°8	14°9	11°5	..	13°8	·88	·64
No. 2 .....	..	..	37°0	37°50	18°8	11°0	11°0	..	12°9	·80	·80
No. 3 .....	..	49°0	84°0	34°0	17°4	12°0	10°5	..	11°9	·69	·80
No. 4 .....	..	52°0	87°0	38°0	18°2	13°9	11°8	..	11°9	·75	·64

## DISCUSSION.

Mr. HYDE CLARKE observes that, instead of giving the remarks he made, it may be more useful for the *Journal* to supply the details on which the observations were founded, and which admit of illustration. The number of characters is 520, and so far to be considered to be alphabetic, because of  $\Theta$  there are 33,\* of  $\div$  21, of  $\cap$  18,  $\cup$  18, I 10, IL, W,  $\Delta$ , O,  $\mathfrak{H}$ , L, II, and IIII, are frequent.  $\div$  is the cuneiform determination for a god or royal personage, and gives the type of  $\aleph$ , which differs so much from the Phœnician and Roman A or  $\gamma$ .  $\Theta$  may be an original of Yod, and affords the type of that found in the Phœnician, Aramaic, Italic, Old Hellenic, and Palmyrene alphabets.  $\cap$  and O may prefigure the Phœnician Ayin, represented very well by the Roman U and O. There are many details, which show the Hamath type to be of very ancient character, and independent of the Phœnician, though having a common origin. It belongs to the epoch (not necessarily phallic) when Nature-worship characterised the comparative mythology:  $\div$  is unquestionably the phallus, and is more ancient than the Phœnician, or A form of the character, for which a word corresponding to phallus must have been the original name, for which "aleph", the bull, is only a substitute. O possibly represents the "yona". The  $\Theta$  of the inscription is the lingam, or combined phallus and yona, constituting with the latter two a triad. This accounts for the peculiar form in the Phœnician, etc., and so different from the square Hebrew  $\aleph$ . In the Hamath character  $\div$  was the first type,  $\Theta$  the middle, and O the last. In Hebrew at present Ayin is not the last letter, but in Greek  $\Omega$  is. The Hamath inscription is calculated, not only to throw light on the simple question of an alphabet, but on the comparative mythology and philosophy of a most remote epoch. It confirms analogous observations made by me on the cuneiform characters to which it belongs. By me it has been identified as that peculiar form of cuneiform, first known in the Warka bricks, and called hieratic. The inscriptions are dedications to Baal, Nana, etc., by princes of Hamath. Looking to the form of the  $\div$ , and to other

\* Mr. Clarke represents by these symbols the characters, which can be recognised in the reproduction of Captain Burton's transcript.

circumstances, there is every appearance that the character brought before the Institute by Captain Burton is, in its form if not in its date, one of the most ancient of its class.

Dr. CHARNOCK said that some of the figures on the drawings resembled the Phœnician letters "daleth", "nun", and "resh", and the Hebrew "heor", "cheth", and "lamed".

The CHAIRMAN said that it appeared to him that the efforts of Captain Burton as regards his researches in Palestine would be of great value in connection with those of the Palestine Exploration Society, of which he (Mr. Harris) had been a supporter from the commencement; following a somewhat different track to what they were doing, and taking up the anthropological department of the subject, as regards more especially the examination of the human remains there discovered. The Anthropological Institute was indebted to Captain Burton alike for his researches in that interesting country, and for the able paper which he had read before them that evening.

Mr. Luke Burke, Mr. W. B. Martin, and Mr. Franks, also offered a few remarks.

The author briefly replied.

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The following paper was read.

RACIAL CHARACTERISTICS, *as related to CIVILISATION.* By  
J. GOULD AVERY, M.A.I.

[*Abstract.*]

RACIAL characteristics are not the result of accident, habit, or climate, but are physical, material, and indelible. . . . Civilisation may be defined as the aggregate of those conditions of mental and social existence in which man differs from the brute. . . . Races will, however, be classed in this paper under three divisions—civilized, semi-civilized, and savage. . . . Nor can any definition of civilization be perfect which does not recognise moral characteristics. . . . Civilization is humanity. . . . It is proposed, then, to inquire (1), is there any sufficient evidence that any race now civilized has descended from savages, or that any savage race has become civilized and yet perpetuated its existence? 2. Has any civilized race degenerated into partial or total barbarism? 3. Has any partially or wholly civilized race exchanged its civilization for another? 1. In regard to the first inquiry, the ancestors of the Greeks, Britons, and Germans are alleged to have been savages... Refuted... The Sandwich Islanders, Maoris, Red Indians, and others have partially accepted civilization, but are dying out. The case of the negro is dubious.

The Caffre rejects civilization, and survives. Reason of this. . . .  
Summary of argument.

2. Has any civilized race degenerated into partial or total barbarism? Egyptians, Greeks, Romans, Bengalis, Spaniards, Lapps, Eskimos. . . . Degeneracy denied. For illustration, imagine that Hindustan were suddenly denuded of its inhabitants, and that historical memorials had perished. The country would then present features similar to those of Egypt, Greece, and Rome, and a traveller admiring the remains of fortresses, palaces, railroads, and other great works, might infer that the country had formerly been peopled by a very powerful and intelligent race; and yet he would be mistaken. Those great works were mainly achieved by strangers and conquerors, and the mass of the native inhabitants had been only their instruments. Such was probably the case in Egypt, Greece, and Rome. The old races who achieved the greatness of their names have died out. . . . A similar process is now in progress in Turkey. Spaniards are not degenerate, nor Lapps, nor Eskimos. . . .

3. Has any semi-civilized race accepted another civilization instead of its own? Modern intercommunication has made different races well acquainted, and they have made rapid progress, but each along its own groove, preserving its ancient characteristics. Instance the Chinese and Japanese, emigrants of different nations in the United States, etc.

Racial characteristics are indelible. They may be overlaid and concealed by the progress of civilization and by surrounding circumstances, but will on emergencies burst forth afresh and assert themselves with undiminished vigour. Importance of the subject to the student and the statesman.

#### DISCUSSION.

Mr. LEWIS, while finding some points of agreement with the author as regarded the first part of his paper, thought many facts might be brought forward against the second part. One of these was the account given by Herodotus of the Lydians, who, though once the most warlike people of Asia Minor, were, after being conquered by the Persians, rendered so effeminate by the customs imposed upon them by their conquerors that their cowardice became proverbial. Turning to modern history, Holland might be mentioned as exhibiting an instance of national decadence, unaccompanied, however, so far as he knew, by individual degeneracy. The Jews, whom Mr. Avery had mentioned as being unchanged throughout the course of History, had certainly lost the martial and turbulent character which they possessed when inhabiting Palestine under the Roman government.

Mr. HUGHES objected to the author's definition of civilisation, as not expressive of that which was usually understood by the term, nor as even embracing what the author in his paper evidently included

under it. He would prefer some such definition as "that which enabled man to obtain the greatest results with the smallest expenditure of force." He showed that, in asking us to point out any instance of a savage race having of its own unaided efforts become civilised, the author was requiring a proof which, from the nature of the case, it was impossible to furnish; for if history could tell us of any such progress as a matter of observation, that implied the contact of a superior race to make the observations. That those who said that the human race had progressed did not hold that each civilised race had become such independently, but that the general advancement went on somewhere all the time; and whenever the more civilised came in contact with the ruder, under conditions in other respects equal, the more civilised either absorbed or exterminated the ruder. He criticised the statements of the author with regard to the divisions of races, showing that in some of the cases adduced the author called one part of the same race barbarous, and another civilised. With reference to the borrowing of civilisation, he pointed out how most of the history of the world was a history of transferred civilisation; and that Greece borrowed from Egypt, Phœnicia, and the East generally, that Rome borrowed from Greece, Britain from Rome, and so on.

Dr. CHARNOCK thought the author of the paper had to a certain extent disproved his case. He said that uncivilised nations never became civilised, and civilised nations never became uncivilised. Mr. Gould Avery cited an ancient author, to the effect that the ancient Britons (who, by the bye, were not the ancestors of the present English people) were barbarians, but Mr. Avery did not agree therewith; and if the facts given by Mr. Lysons were correct, there is no doubt that the ancient Britons must have been a very civilised people. But what were most of the Keltic Irish of the present day but savages? On the other hand, Mr. Avery said that the ancient Germans were barbarians. Now, there is no doubt that the Germans had in modern times done their best to demoralise Europe, but at the same time, as compared with what they were anciently, they are a civilised people. And what did the author of the paper think of the ancient Peruvians and Mexicans? Their architecture proved that at one time the people of these countries must have been highly civilised. With regard to the Peruvians, the civilisation had grown up among the nation itself, and was not derived from any other people. The most ancient and most important of the monuments of Mexico were not, strictly speaking, Mexican, but were probably the work of the Toltecs. Now, if the latter still existed under some other name, they had ceased to build such monuments; and if they had been blotted out altogether, they must have first become deteriorated.

Mr. AUGUSTUS GOLDSMID observed that he should not have troubled the meeting had it not been for the remarks of one of the speakers, which he could not allow to go forth to the world unnoticed. What that gentleman had stated as the law of England, and as if applicable to all cases—i.e., that a female infant could be ravished with im-

punishment—might and no doubt was a fact in the particular case quoted, but was the result not of a defect in the criminal law itself, but in the law of evidence as applied to criminal cases, which had since been remedied, requiring in all cases evidence upon oath, founded upon a knowledge by the juror of the religious consequences of a false oath. The other assertion made, that anyone could take up a loaded gun and fire it at another without any kind of penal consequences, was also a confusion between evidence and fact, the law of England requiring that the jury should be satisfied of the intention of a party committing any criminal act; the punishment of such an offender depended on their opinion as to the intent. Mr. Goldsmid further observed that he should have been glad, had not the hour been so late, to have made some remarks on the very interesting paper they had heard, but he would content himself with observing, at all discussions of so large a nature, definition of the subject matter was the first thing needful, and that probably every gentleman in the room might give a different definition of civilisation. As for himself, he could not admit that to be civilisation which was not consistent with the physical wants and circumstances of those subjected to its influences; and improving a race off the face of the earth, whether more or less gradually, was not in his opinion either civilisation or progress.

The CHAIRMAN could not quite acquiesce in Mr. Avery's definition of civilisation, as the aggregate of social and moral conditions in which man differs from the brutes. In some qualities, he feared, we were occasionally below the brutes, and indulged in vices to which they are strangers. Mr. Avery had contended that no savage races were ever civilised. But surely our ancient British forefathers were as savage as any uncultivated races of the present day. The reader of the paper had also said that no race ever adopted the civilisation of another. But had not the ancient Britons adopted the civilisation of the Romans, the Romans that of the Greeks, and the Greeks that of the Egyptians? The modern Greeks and Italians it was, however, argued, were not the descendants of their civilised predecessors in their land. They possessed, however, many qualities and similarities which served to indicate the identity of the race. Holland had been spoken of as a degenerate country, compared with what it had been in former times. It was in ages past great in war; it was now great in commerce. But surely this was an indication of progress in civilisation, not of barbarism. The paper on the whole, however, was one of great value, and had elicited a very interesting and able discussion on the several points which it had so forcibly suggested.

Mr. AVERY said that he had brought forward this subject in the most sincere spirit of scientific inquiry. The paper was the result of the reading and reflection of many years. The points referred to by various speakers were so numerous, and the evening so far advanced, that he could not reply to them all. He would remark, however, that in defining civilisation, he had intended chiefly to explain the meaning which he attached to the word, and not to set up a standard for others, though he confessed he had never seen a better meaning.

But the points he was anxious to direct attention to were the three leading questions in his paper: 1. Is there sufficient evidence that any civilised race had barbarian ancestors? 2. Has any civilised race degenerated into partial or total barbarism? 3. Has any semi-civilised race adopted another civilisation instead of its own? The interest of these inquiries extends far beyond the limits of the present subject; for if it cannot be shown that any race of men have emerged from barbarism to civilisation, it will be very difficult to prove that, according to the Darwinian theory, they have risen from the state of monkeys to that of men. In conclusion, he thanked the meeting for the kind manner in which the paper had been received.

The meeting then separated.

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MARCH 18TH, 1872.

DR. R. S. CHARNOCK, *Vice-President, in the Chair.*

THE minutes of the last ordinary meeting were read and confirmed.

M. LETOURNEUR, Conseiller d'Etat, Algiers, and Dr. HAAST, of Canterbury, New Zealand, were elected Corresponding Members of the Institute.

The following presents were announced, and the thanks of the meeting voted to the respective donors:—

FOR THE LIBRARY.

From the SOCIETY.—Jahrbuch der K. K. Geologischen Reichsanstalt; October, November, and December, 1871; Verhandlungen, ditto, October 1871.

From the AUTHOR.—Right-handedness. By Daniel Wilson, Esq., LL.D.

From JAMES BURNS, Esq.—Human Nature for March 1872.

From the EDITOR.—The Food Journal for March 1872.

From the INSTITUTE.—The Canadian Journal, February 1872.

From the EDITOR.—Nature, to date.

From the ACADEMY.—Bulletin de l'Académie Impériale des Sciences de St. Petersburg, Nos. 2-6.

From the SOCIETY.—Transactions of the Royal Society of Literature, vol. x, part 1.

From the ASSOCIATION.—Report of the British Association for the Advancement of Science, Edinburgh, 1871.

From the EDITOR.—The Mining Magazine and Review for March 1872.

From the ASSOCIATION.—Proceedings and Report of the Geologists' Association, 1871.

From Messrs. STREET BROS.—List of Newspapers published in Great Britain and Ireland.

From the EDITOR.—Archivo per l'Antropologia e la Etnologia.

From the SOCIETY.—Transactions of the American Philosophical Society, vol. xiv, part 3; Proceedings ditto, vol. xii, No. 87.

Dr. A. LEITH ADAMS exhibited a Series of Chipped Flints collected by him in the Islands of Guernsey and Herm. The author, in conjunction with the Rev. W. C. Lukis, Captain Lukis, and Dr. Murray, R.A., discovered large quantities under the superficial soil and beneath the sand dunes on the north-east of Guernsey, and on the summit of the eastern plateau of Herm, sometimes associated with hand-made pottery and flat water-worn stones, which showed a rough indentation for the thumb on one side, and two similar on the other, evidently for the tips of the fore and mid-finger, so that the implement might have been used for the purpose of chipping flakes from cores. In arranging a very large assortment of the chipped flints, Dr. Adams was enabled to trace the process of formation of the small, nicely-barbed arrow-head found in the cromlechs, and with neolithic implements in the islands, *i.e.*, from the core to the flake, then the rough point, the imperfectly-fashioned point, the all but completed arrow-head, and numerous nearly-fashioned specimens which had evidently been broken by the workmen when finishing them. Dr. Adams also drew the attention of the Society to a remarkable ancient raised beach in Guernsey, formed of chalk flints, and water-worn granite pebbles, several feet above the sea level, from whence evidently the greater part, if not all, the flints had been derived that were manufactured into implements during the existence of the polished stone age in that island.

Colonel LANE FOX read the following Report on a Collection of Implements, &c., from Saint-Brieuc, Normandy.

Having examined the articles submitted by M. Hénu, in accordance with the wish of the Council, I find amongst the objects found in the fortified camp of Saint-Brieuc a polished stone celt, six inches long, and two and a half broad; a whetstone, artificially rubbed on one side; an iron leaf-shaped spear head, one foot three inches long, and two inches broad, with socket; some fragments of turned pottery, which may be of the Roman or Gallo-Roman age; and some fragments of bone, apparently of the horse and other recent animals. These articles indicate occupation in distinct periods; and it therefore appears probable that the fortified camp in which they were discovered may, like

many in this country, have been constructed during the stone age, and have continued in use until a much later period. From the *Station de Granville* there is a stone celt of the usual type, somewhat more pointed at the smaller end than the last-mentioned specimen, four and three-quarter inches in length, and two inches its greater breadth; and a fragment of pottery, apparently of the Roman or post-Roman age. From the Fort of *Pérran* there is a whetstone, artificially rubbed on three sides, and another showing also marks of use. There are fragments of red pottery from this station. With respect to the other stones composing the collection, I am unable, without personally inspecting the locality, to form any opinion as to the manner in which their surfaces have become worn.

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*The COMPARATIVE LONGEVITY of ANIMALS of DIFFERENT SPECIES, and of MAN; and the Probable Causes which mainly conduce to promote this Difference.* By GEORGE HARRIS, F.S.A., Vice-President of the Anthropological Institute.

HISTORY, both sacred and profane, attributes to mankind who lived in the early ages of the world, a longevity very far exceeding what we have experience of in our day. To some extent this difference may possibly be accounted for by the different modes in which eras of time were calculated. Possibly also the planetary system by whose revolutions periods of life were reckoned, may have undergone certain changes during that space of time. Easton, however, appears to give entire credit to the literal interpretation of the statement as to the longevity recorded of the patriarchs, and accounts for the limitation of the period of life since their time by remarking that "the productions of the earth were then of a different nature. The surface of the globe was in the first ages of the world less solid and compact. The period of man's existence may have gradually diminished in proportion as the surface of the earth acquired more solidity by the constant action of gravity."<sup>\*</sup>

Dr. Whewell, the late able and learned Master of Trinity, accounted for the longevity of the patriarchs by the fact that Adam and Eve had eaten of the tree of life, and that its virtue was transmitted through several successive generations, till at last it became dissipated and lost, and man was reduced to a miserable tithe of his first possession.<sup>†</sup>

Lord Bacon, referring to the general period of the life of man,

<sup>\*</sup> "Human Longevity", *Introd.*, p. xxvii.

<sup>†</sup> "Life; its Nature, Varieties, and Phenomena". By Leo. H. Grindon. P. 114.

asserts that "man's age doth exceed the age of all other living creatures."\*

In the early records of our own country accounts are preserved of people living to a much greater age than they now do. Among the ancient Britons people commonly lived to the age of one hundred and twenty years. There are isolated instances in modern times of men living much beyond this age.

An able and well-written article on the general subject of longevity is contained in the *Edinburgh Review* for January 1857, which is attributed to Sir Henry Holland. It, however, throws some doubt on the reality of the great age asserted to have been attained by Jenkins and the Countess of Desmond,—one hundred and sixty-nine and one hundred and forty-eight years respectively; but confirms the account given of the longevity of Thomas Parr, and refers to the dissection of his body by the celebrated Harvey, who concluded from its appearance that he might have lived much longer but for the surfeit of food and changes in his habits which followed his removal to London, and to the kitchen of the palace.

Extraordinary and perhaps extravagant notions were entertained by the ancients as to the longevity of certain animals. According to a passage in Hesiod, referred to by Sir Thomas Browne,† ninety-six is the period of the life of a man, while that of a deer extends to above three thousand, and that of a crow to considerably beyond that period. But naturalists also of high repute and great credit, modern as well as ancient, afford us extraordinary accounts of the longevity attained by certain animals. Smellie, in his "Philosophy of Natural History," alludes to the great longevity of certain animals. Elephants live beyond two hundred years.‡ "In proportion to the size of their bodies, birds live longer than either men or quadrupeds. Swans have been said to live three hundred years."§ A goose is said to live beyond one hundred years,|| as do also ravens.¶ "Gesner gives an instance of a carp in Germany which he knew to be one hundred years old. Buffon informs us that he had seen carps of one hundred and fifty years of age, and he mentions one which he supposed to be two hundred years old."\*\* Pike have been known to live to two hundred and sixty-seven years.†† The tortoise is said to have attained one hundred and seventy-five years,‡‡ and the falcon one hundred and sixty-two years."§§ A Greenland whale, we are told, will live from three hundred to four hundred years.¶¶ Parrots and several other ani-

\* "History of Life and Death". † "Vulgar Errors".

‡ P. 283.

§ P. 512.

|| Ibid.

¶ Ibid.

\*\* Smellie, p. 514.

†† Gesner, quoted by Yarrell.

‡‡ Grindon on Life.

§§ Hufeland, "Art of Prolonging Life".

¶¶ Grindon on Life.

imals, including some reptiles, are also said to afford extraordinary instances of longevity; while certain other animals, not apparently differing essentially in their nature and constitution from those to which I have referred, are as remarkable for the brief space to which their lives are ordinarily limited. Some trees are supposed capable of attaining an extraordinary age. The oak will live for fifteen hundred years, and the yew for three thousand two hundred.\*

The opinions which have been entertained by different writers who have examined minutely into the subject, as to the principal causes of longevity both in animals and men, are deserving of attention, although no satisfactory conclusion has as yet been arrived at, and they differ essentially from one another in their theories on this topic. The famous Roger Bacon wrote a treatise entitled "The Cure of Old Age."† But the wonderful genius who six hundred years ago predicted travelling by carriages and by boats propelled by machinery, and navigating through the air, and to whom the inventions of printing and the telescope were also known, failed to produce any recipe for attaining long life beyond a few ordinary maxims regarding health. Paracelsus boasted that he could make a man live four hundred years or more if he might bring him up from his infancy, and diet him as he chose.‡ And Burton tells us in his "Anatomy of Melancholy" that some physicians hold that there is no certain period of man's life, but it may still by temperance and physic be prolonged.§ Lord Bacon, in his "History of Life and Death," discusses the causes of longevity, and he attributes the varieties in this respect to variations in the density of the vital spirits, and other causes affecting those spirits, and lays down the following maxims of prolonging life: "Alimentation from without, at least some other way than by the stomach, is most profitable to long life, if it can be done," canon xxiii; "Curing of diseases is effected by temporary medicines, but lengthening of life requireth observation of diet," canon xxx.

In his "Natural History"|| Lord Bacon also states that "It conduceth unto long life, and to the more placid motion of the spirits, which thereby do less prey and consume the juice of the body; either that man's actions be free and voluntary, that nothing be done *invita Minerva*, but *secundum genium*; or, on the other side, that the actions of men be full of regulation and commands within themselves, for then the victory and performing of the command giveth a good disposition to the spirits, especially if there be a proceeding from degree to degree, for then the sense of

\* Grindon on Life.

† "De Retardandis Senectutis Accidentibus". Oxford, 1590.

‡ "Lib. de Vita Longa."

§ Part i, sect. 2.

|| P. 292, "Experiment solitary touching prolongation of life".

the victory is the greater. An example of the former of these is in a country life; and of the latter in monks and philosophers, and such as do continually enjoy themselves."

Sir John Sinclair, in his "Code of Health and Longevity," vol. ii, gives a catalogue of one thousand four hundred and twenty "foreign publications on the subject of health and diet." In the "Appendix," vol. ii, to the above work are "rules by which a person will be enabled to prolong life to the latest period." Rule 10 advises people to refrain from dinner once a week.

Mr. Herbert Spencer\* attributes the apparent absence of inherent decay in many trees, in fish, and in some reptiles, to their exceedingly small expenditure; trees and plants generally exhibiting no personal expenditure at all, whilst fish and certain cold-blooded reptiles show very little indeed.

The period occupied in the growth of an animal has sometimes been adopted as the test to what that of its life will extend. But this has been found to vary extensively in the case of different animals. Bodily strength, vigour, and health also fail to afford any certain indication as to the period to which life will reach, as the strongest and healthiest not unfrequently die early, while the frail and sickly turn out to be long-lived. Climate is said to occasion but little difference as to the period to which the lives of persons extend, although there is some difference of opinion in this respect, and certain climes appear to be peculiarly favourable to longevity. At one period Italy seems to have been remarkable in this respect. Cornwall, too, has been noted for longevity. Air and diet have always been supposed to exercise an important influence on longevity. Certain writers have attributed the longevity of the ante-diluvians to their sobriety and the simplicity of their manners, to their abstaining from eating flesh, and to the excellence of the fruits and herbs of those days, also to the purity of the air in those times.† But while some men who lived temperately, and even abstemiously, have lived to a great age, others who followed the very opposite course have been equally long-lived.‡ In general, however, notwithstanding a few exceptions, it appears to be generally admitted that "temperance, a placid and cheerful disposition, moderate exercise, and proper exertions of mind contribute in no uncommon degree to the prolongation of life."§

Some pursuits are also obviously much more favourable to longevity than are certain others. The clergy are proverbially long-lived; and, strange to say, the lawyers, too, frequently ex-

\* "Principles of Biology".

† Rees's "Cycl." Art., Longevity.

‡ Smellie, p. 505.

§ Ibid.

hibit great tenacity with regard to life, as they do with regard to other matters also. According to averages taken by Dr. Caldwell, the lives of twenty mathematicians extended to seventy-five years, while those of twenty poets extended to only fifty-seven years.\*

The quality of the air is thought by some to cause the chief difference in longevity.† It has indeed been proved by statistical returns that fresh air is one of the main conduces to it. In the case of wild winged birds, who partake of it to the utmost possible extent, this is probably one of the principal causes of their being so long-lived. And wild animals in general have the full benefit of it, and in its purest state. According to Easton, "fresh air is more immediately necessary to life than food."‡ He asserts also that "there is a vivifying principle contained in the atmosphere."§ In general there are more old men in high than in low countries.|| And yet in thickly-populated cities which are placed in a low situation some extraordinary instances of longevity may occasionally be observed.

Artificial food, both as regards meat and drink, may be supposed to be far less favourable to longevity than that which is in a natural state. Indeed, according to certain statements, the people of this highly-civilised age and country live mainly upon poison! Civilisation, however, may be presumed to be in many respects favourable to longevity, but that civilisation should be untainted by luxury. It should be such a state of civilisation as will provide against want, and afford regular exercise both to the mental and physical powers, but without leading mankind to indulge in those excesses of various kinds to which men in society are so frequently addicted.

Domestication appears to have a corresponding effect upon animals with what luxury has upon mankind. Lord Bacon tells us in his "History of Life and Death" that "in tame creatures their degenerate life corrupteth them; in wild creatures their exposing to all weathers also intercepteth them". But besides their exposure to the weather, wild animals are ever exposed to attacks from each other. But while tame animals are protected from many of these casualties, few domesticated animals are long-lived. The habits into which they are forced are contrary to nature. They take but little exercise. They feed on artificial diet, and their instincts become blunted. It is accordingly among wild animals that the extraordinary instances of longevity alluded to are afforded. Mr. Lankester, however, tells us that animals in

\* Combe's "Principles of Physiology", p. 366; Caldwell on "Physical Education", pp. 84, 86.

† Smellie, p. 510.

‡ "Human Longevity", *Introd.*, p. xxi.

§ *Ibid.*

|| Smellie, p. 510.

a domesticated state, which are supplied with food and protected from the attacks of other animals, may live much longer than in a state of nature.\* But this proves nothing as regards their natural longevity. They are less liable to die from want or violence, which are mainly destructive in the case of wild animals, but their natural term of life is considerably abridged. In the case of wild animals there is, of course, much greater difficulty in ascertaining the precise period to which their lives are extended than in the case of those that are domesticated. This, however, may in many instances be successfully accomplished. Singular it is that in localities where wild animals abound we so seldom meet with instances of old and decrepit animals, and still less with the remains of animals that have died of old age. Among our domestic animals, instances of decrepitude from old age are very common, notwithstanding the alacrity with which they are killed off before they get too old to serve for domestic use. This apparent longevity of certain wild animals affords some support to the statements of the ancients as to the extraordinary longevity of certain animals, and also of the patriarchs, whose longevity has been accounted for by their living in a state of nature, as is the case with wild animals, feeding only on diet which is pure, simple, and unadulterated. On the other hand, savages, who certainly have certain advantages in this respect over civilised people, do not have their lives prolonged beyond the ordinary term. But then it should be borne in mind that savages, where they live in large hordes, have generally adopted some artificial habits which are at variance with nature and inimical to longevity; besides which, as is the case with the natives of New Zealand, they have often a difficulty in procuring sufficient and good food, and live in unwholesome dwellings, all which renders their case very different from that of the patriarchs.

Nevertheless, it cannot be doubted that if some particular animals do really enjoy a longevity far beyond the rest of their species, as to which there are assertions apparently well authenticated, there must necessarily be some special cause existing, either in their constitution or their mode of life, which occasions such longevity. And if this affects one animal, it will affect another; and if life may be prolonged in one case to a period far beyond its natural extent by the application of certain causes, it may be by a corresponding application in another case. If the life of a beast, or a bird, or a fish, may be extended to ten times its natural length by special agencies, is there any reason to suppose that the life of man is not subject to the same influences?

\* "Comparative Longevity in Man and Animals".

The late Dr. Monro went so far as to maintain, in his anatomical lectures, that "as far as he could observe the human body, as a machine, was perfect; that it bore within itself no marks by which we could possibly predicate its decay; that it was apparently calculated to go on for ever; and that we learned only by experience that it would not do so".\*

Is it altogether irrational to suppose that some principle analogous to that of vaccination, or to that supposed to be contained in the very tree of life itself, may at some distant period in the progress of science be brought to light by which the animal frame may be revigorated and rescued from decay, and so fitted to endure, I will not presume to say for ever, but to an age corresponding with that to which we are told that both the patriarch and many animals have attained? Not improbably, indeed, there may be numerous natural medicines to which the instincts of wild animals spontaneously direct them, such as certain plants and springs, resort to which may have the effect at once of producing those particular results, and those alterations in their system, which capacitate it to endure for a long period. We see proof of this to a certain extent in certain cases, and it may reasonably be inferred that it exists to an extent considerably beyond our experience. If our science served us as efficiently as their instinct does them, we possibly might make corresponding discoveries with corresponding results. Possibly the patriarchs did possess this knowledge. Among certain savage tribes of men, whose instinctive powers are largely developed, while those of the reason are but little cultivated, a remarkable sagacity as to the medicinal properties of some natural productions has been occasionally exhibited.

In order to determine the points now at issue, we must inquire and ascertain as far as possible what is the real principle on which the comparative duration of life in every animated frame depends, and which appears to me to be as follows. In every such frame, commencing with the very germ itself, there is implanted a principle of growth or composition, by the operation of which, aided by nutrition and accretion, the frame goes on increasing and enlarging, rapidly at first, but gradually more slowly, and very languidly in old age. On the other hand, there is another principle contemporaneous with this, that of waste, or decay, or decomposition, which operates at first very slowly, but gradually increases in rapidity and strength, being very speedy and powerful in old age. The operation of these two principles is best and most clearly exhibited in the case of vegetable frames. But in those of animals and also of man it may be clearly perceived. So long as the growth in question exceeds

\* Appendix to Combe on "The Constitution of Man", p. 434.

or keeps pace with decay, life is maintained; but whenever the progress of decay, or decomposition, exceeds that of growth, the frame declines, and death speedily ensues. Certain causes tend to promote the action of one of these principles, and certain causes tend to promote that of the other. Some of these causes are very powerful and obvious, and act in a direct manner. Others appear to be but feeble, and are scarcely perceptible, and act only indirectly. For instance, intemperance, incontinence, and irregularity of life, as also excessive toil, unwholesome food, and bad air, are directly calculated to hinder growth and promote decay. On the other hand, the opposite of these causes are as directly calculated to promote growth and retard decay.

The very essence of certain diseases is in reality but the triumph of decay, or waste, or decomposition, over growth or renovation; and therefore, if the complaint in question be of long continuance, it necessarily terminates in the dissolution of the frame, and in death. We see this more particularly and clearly evinced in the case of the disease termed consumption. People in reality die of old age, not when they have lived so many years, but when they are worn out—by the progress of waste and decay outstripping that of growth and renovation. As many, therefore, die of old age, from being worn out, at eighteen as at eighty.

It may, I think, be assumed that the real and only scientific test as to the capacity of any particular individual animal frame to last for a greater or less period of time, turns on the constitution of such frame, whether as regards its material texture, its temperament, its organisation, or its fluids, more especially the blood. Different animal frames no doubt differ extensively one from another in this respect. For instance, women are said to live longer than men, because "the bones, the cartilages, the muscles, as well as every other part of the body, are softer and less solid than those of men".\* But if animated beings of the same species differ one from another as regards their adaptation for longevity owing to a difference in their constitution, we may suppose that animated beings of a different species will differ far more extensively from the same cause. Thus fishes, we are told, "live during several centuries, because their bones and cartilages seldom acquire the density of those of other animals".†

Comparative longevity, therefore, depends mainly on natural constitution. Nevertheless, inasmuch as whatever be the natural constitution, there are certain causes which will tend to abridge longevity, such as incontinence, intemperance, unwholesome diet,

\* Smellie's "Philosophy of Nat. Hist.", p. 509; Barr's Buffon, pp. 3, 4, 100.

† Smellie, p. 509.

and adopting many artificial habits; are there not also certain causes which in a corresponding manner, whatever be the natural constitution of the individual, will tend to increase longevity? To determine this point, we must decide the question how far artificial appliances are able to alter to any great extent those qualities of the frame already alluded to, on which longevity is supposed mainly to depend. In fact, the real and sole essential question at issue is this. Can any measure be adopted which will have the effect to any important extent of checking waste or expenditure, on the one hand, and of increasing growth or reproduction, on the other? This is a subject open to experiment in many ways of a most interesting kind. Certain waters, for instance, are said to have an effect upon the cartilages in the way stated; and it is to causes of this kind that the patriarchal longevity has been by some writers attributed. Probably their most powerful and direct effect is seen in the difference they appear to occasion in the duration of the life of animals that are domesticated and those that are wild.

Mr. Easton well observes that "the more a man follows nature, and is obedient to her laws, the longer he will live; and that the further he deviates from these, the shorter will be his existence".\*

The question then arises, what are we to do in order completely and fully to follow nature, especially in our present highly-civilised, not to say luxurious, state of society, when so much that is entirely contrary to nature is peremptorily imposed upon us? Mr. Easton particularly recommends plenty of exercise, plain food, and fresh air. The two latter are, however, in many cases difficult to obtain.

The German writer, Hufeland, in his "Art of Prolonging the Life of Man," which is to a great extent based on Lord Bacon's work, already referred to, has arrived at certain conclusions as to the causes of the duration of life, which he considers to be dependent on the quantity of vital force contained in the body, and the promotion of the influences which contribute to decrease or diminish that force. He does not, however, even attempt to suggest any mode of producing or accelerating these influences, beyond stating that "a body which has the most perfect means of regeneration, both internal and external, will endure a longer time than one not provided with these means"; which is simply saying that a frame which is fitted to last a long time will last longer than one not so fitted, but without attempting to tell what we are to do to make the frame so last.

No doubt with our present limited scientific knowledge it appears far easier to shorten life than to prolong it. But if causes operate alike and with equal force in each direction, it must be

\* "Human Longevity", *Introd.*, p. xi.

solely owing to our ignorance of the mode of rightly using these appliances that such is the case. We have proof positive, indeed, of the fact that "increased attention to the organic laws has greatly reduced the rate of mortality in Europe, and it cannot be supposed that further improvement is impracticable".\* Considerable changes have accordingly taken place in the average duration of life in England during the last hundred years. At the early part of this period it was twenty-eight years. According to more recent tables it was thirty-two years; and it has been calculated that it may fairly be expected to extend to forty years.† From the tables of the average duration of life in Geneva during the last two hundred and sixty years, it appears that while from 1560 to 1600 the average was only eighteen years, from 1815 to 1826 it was nearly thirty-nine years.‡

Nevertheless, admitting all this, I must beg to suggest that it is clearly erroneous to contend that the increased average in the duration of human life affords any actual proof of increased longevity. All that it proves is, not that men are longer-lived than they used to be, but that owing to increased attention to sanitary laws, they are less frequently cut off by diseases resulting from the neglect of sanitary precautions. It is very possible, indeed, for mortality in a particular district to be very great, owing to the neglect of sanitary laws, and yet in the same district for remarkable instances of longevity to be found.

The entire question, therefore, resolves itself into the following simple points, the satisfactory solution of which will decide the whole matter at issue: 1. Are the statements which have been made to us by historians and naturalists as to the extraordinary longevity of the patriarchs, and other early inhabitants of the earth, as also of animals of a certain species, both in ancient and modern times, entitled to our credit? 2. Are the causes which have been assigned as occasioning the extraordinary longevity in question, such as may be reasonably supposed to have been productive of it? 3. Are these causes controllable in any way, and is it possible by any resort to artificial appliances extensively to increase or diminish longevity in the case of either man or animals?

*The PHYSICAL CONDITION of CENTENARIANS, as derived from PERSONAL OBSERVATION in SIX GENUINE EXAMPLES.* By SIN GEORGE DUNCAN GIBB, Bart., M.A., M.D., LL.D., F.G.S.

OPPORTUNITIES are seldom afforded of seeing centenarians, unless

\* Combe's "Principles of Physiology", p. 387.

† Combe, "On the Constitution of Man", p. 234.

‡ Appendix to Combe "On the Constitution of Man", p. 434.

the trouble is taken of travelling long distances to various parts of the country; and it is extremely difficult to examine them thoroughly for scientific purposes, unless favoured with the assistance of friends or other persons who may be about them, willing to furnish information, and answer questions of importance and interest. Their great age is necessarily a great obstacle to conversation, unless their general health is good and their mental faculties unimpaired, which is not always the case. In the course of my lifetime, I have seen several centenarians in different parts of the world, but in six undoubted examples only have I obtained from personal observation sufficient reliable data, forming a series of new facts, to warrant my drawing some comparisons respecting their physical condition, that help to show why they have been enabled to reach a period of life so much longer than that allotted in the Mosaic record. I have been stimulated certainly with the desire to ascertain the condition of the upper respiratory organs in the first place, in carrying out a series of inquiries that have occupied my attention for many years concerning the larynx and epiglottis, which have been brought before the British Association for the Advancement of Science and other kindred bodies; but other conditions have not been neglected, which it is my purpose to consider generally in this paper: they are of interest not only to the physiologist and anthropologist, but to all classes of the community. It may be permitted me to observe here that, to some extent, the subject of this communication is comparatively untrodden ground; for, with the exception of what I have myself published elsewhere, no one has written anything upon the condition of the upper air-passages in *living* persons who have reached the age of 100 years; moreover, very few persons—probably none—have been enabled to examine so many as six individuals who have attained to such a great age for scientific purposes. The results of my investigations, too, are opposed to those views generally entertained as regards the changes which are presumed to occur in cases of such extreme old age.

Without going into minute particulars, the persons who furnished the data for the present communication were two males and four females; namely,

1. Jacob William Luning, born at Hamelvorden, in Hanover, May 19th, 1767, died at Morden College, Blackheath, June 23rd, 1870, aged 103.
2. ——— Eldrich, born in the county of Gloucester, in July (Dec. 10th ?) 1767.
3. Elizabeth Brown, born at Hemstead, Norwich, in July 1768, died in Paddington Workhouse Dec. 6th, 1869, aged 101.
4. Mrs. Ann Hogg, born at Rosskeen, county of Rosshire, Aug. 2nd, 1769.

5. Miss Wallace, born in Glasgow, July 1st, 1770.

6. Mrs. Mary Paterson, born in Carmannock, near Glasgow, October 3rd, 1770.

The first, Luning, reached the age of 103; the second, Eldrich, is 104; Brown, Wallace, and Paterson, are 101; and Hogg is 102. All are living except Luning and Brown; Eldrich and Mrs. Hogg can be seen in London.

Regarding the accuracy of their ages there is not a doubt; for I have been as anxious to satisfy myself upon this point as any believer in the unsupported assertion of Sir George Cornwall Lewis, made some years ago, that no one ever reached the age of 100 years. Some obstacles were thrown in my way regarding Eldrich; but notwithstanding them I am quite satisfied as to his age.

I must here express my acknowledgments to my friend Dr. Muirhead of Cambuslang, near Glasgow, who accompanied me to see Mrs. Paterson; to Dr. Stewart, of Southwick Street, Hyde Park, who introduced me to the nephew of Miss Wallace, at whose house in Stirling I saw her in August 1871; and to E. A. Conwell, Esq., who made me acquainted with Mr. Eldrich, of Peckham; and not less to the Hon. and Rev. John Harbord, who kindly permitted me to see Mr. Luning in 1869.

The functions to which I chiefly directed my attention in all were the respiration and circulation, believing that the most perfect integrity of the lungs and the heart had a great deal to do with their age. This applied even more to the lungs than the heart, for the latter did not give any evidence of disease in any of the six, unless an occasional intermission in the beats at long intervals towards the end of life in those who died.

The *Respiration* was perfect throughout; the chest expanded regularly and fully, similar to persons in the prime of life; the chest capacity necessarily varied according to the size of the person—I doubt whether it was great in any, but it would have been impossible to test it in the usual way. The respirations were slow, comparatively, and during the expansion of the chest the ribs moved with the resiliency of ordinary adult life, and the cartilages were observed to separate and yield to the expansive force as is seen in young persons. As the breathing was not at all abdominal, so common in ordinary old age, and as the movement of the ribs and their cartilages was wholly unimpeded, the inference is a fair one that the cartilages had not undergone any alteration by ossific deposit; that is to say, they were not ossified, and could have been as readily cut through with a knife as in persons of the age of 25 or 30. This fact of non-ossification of the cartilages of the ribs in persons of such advanced age is contrary to the doctrine hitherto held

by most writers, who have fallen into the error of taking it for granted that they necessarily must have been ossified because the condition is one so common in persons who die at the age of from sixty to eighty years. If the chest-capacity was not great, the chest was, at any rate, well formed, and the breathing was heard distinctly, and free from anything abnormal, wherever the ear was applied. The resonance on percussion was also good. All these together pointed to the fact that the lungs were in a most healthy condition, every portion of each lung performing its function in the most regular and uniform manner. There was not even any susceptibility to disease; but in Eldrich, aged 104, there was a hard cough, not frequent nor distressing, from a cold he had caught.

Being satisfied of the healthy condition of the lungs, it was necessary to inspect what I have already referred to under the name of upper air-passages, and these consisted of the larynx and the trachea, ordinarily known as the windpipe. In fact, what induced me in the first instance to examine the oldest people I could come across was to ascertain the position of the cartilage at the top of the windpipe, known as the epiglottis, concerning which I have already brought two or three communications before the Anthropological Society, which are published in the first and third volumes of their *Transactions*. My anxiety concerning the position of this cartilage in such old persons was considerable; for if I had found that it was pendent in any of them in place of being vertical, then some important views that I had brought forward, relative to longevity beyond seventy years, would have become untenable. The epiglottis in every one of the six persons possessed its natural vertical position and leaf-like shape, and seemed to be well placed at the root of the tongue: the consequence was, that the upper part of the larynx was fully open, and no impediment was offered to the freest admission of air for the purposes of breathing, and, under such circumstances, *cæteris paribus*, the most perfect arterialisation of the blood took place in the lungs, and perfect health was maintained throughout a long life. Had the epiglottis been pendent or recumbent in any one of these aged persons, life would not have been prolonged beyond seventy, as I have had already occasion to dwell upon before several of the scientific associations.

The larynx, or little box which we can all readily feel in our necks, was healthy and well formed; the vocal cords were perfect in their action, of suitable length according to sex, possessing the colour and appearance as seen in middle age. Their wide separation permitted of a good view of the trachea, which, from its internal appearance and soft feeling in the neck, led me

to the conclusion, that the rings which entered into its formation, as well as, I may say, the rings of the larger bronchial tubes, were not at all ossified, however much or little calcareous deposit might actually be found to exist. This, too, is contrary to the view generally entertained, and will equally apply to the cartilages of the larynx, for they felt soft and yielding in the neck, quite different to the hard and resisting box, the result of extreme calcification and ossification combined. I am not prepared to deny that even in a soft, yielding larynx these last two conditions may not be present in some proportion in the more solid cartilaginous portions, for such was actually the fact in a larynx taken from a man 103 years old, and I have figured the appearances in one of my medical works.\*

The voice in all was good, clear, sonorous, or fairly audible, firm, and perhaps I might say powerful, although a little cracked and tremulous in two, especially in Luning. In him, however, it was most powerful, although not very distinct, and the vocal cords had a tinge of yellow instead of the greyish-white, as seen in most of the others. In Eldrich, on the other hand, the voice was smooth and melodious, not loud, harsh, nor rough. In Mrs. Hogg it is so loud and powerful as to be heard above all those about her. In Miss Wallace the voice was not unduly loud; the speech was clear and distinct, though a little fast and childlike; she was the shortest and smallest of the six centenarians. Mrs. Paterson had a good, clear, and strong voice; whilst in Brown it was a little tremulous and weak.

The chest-capacity, therefore, judging from the voice, as indicating bellows-power, was good in Luning, Hogg, and Paterson; and I should say not less so in Eldrich, from his breadth of chest, although his voice was soft and melodious. The breathing during conversation was not short nor hurried in any.

To turn next to the *Circulation*. The heart was healthy, and free from any unusual sound; the beats were perfectly regular, except towards the termination of life in the two who died. The action of the heart was moderate and quiet, but not feeble, and was not influenced by any excitement. The size of the organ was not increased, so far as I could make out; and the heart was free from fat, which, when present, is a source of great trouble in old persons. This latter circumstance, although it would not prevent moderate calcification of the blood-vessels, as I inferred might exist in Mrs. Paterson, was nevertheless a saviour of all the tissues of the body, and prevented the occurrence of those changes which tend to shorten life, and need not be entered into here, as they are pathological. There was an absence of the atheromatous changes commonly observed in old age; and I

\* "Diseases of the Throat and Larynx." Second Edition.

must here say, that if calcareous deposits are found to exist between the coats of the blood-vessels, they are not necessarily preceded by atheromatous deposits—a doctrine that has long become exploded, and need not be discussed here. The pulse at the wrist was soft and yielding, a little less frequent than in young persons: it was 54, or thereabouts, in Mrs. Paterson, in whom the artery felt a little harder than in the others, but it was nevertheless compressible, which may indicate simple thickening without any trace of calcification. The vessel was a little hard likewise in Eldrich, but still compressible.

The heart and its blood-vessels throughout the body may be taken, therefore, as healthy, and free from any of the changes usually observed in ordinary old age, a view opposed to that hitherto entertained regarding centenarians, but still further confirmed by the *post mortem* inspection of an old man who died at Southampton, aged 103, by Dr. Beith, R.N., who found every organ of the body healthy except the bladder.

The absence of atheromatous changes in any part of the body of the six centenarians explained the appearance of the countenance in all, which showed an absence of deposit under the skin of any of the elements of fat. This, in the males especially and in Miss Wallace, imparted a sort of *silvery expression*, with apparently great toughness of the skin, which I deem to be an essential peculiarity in persons over ninety, at any rate; but it was most striking in the males, and I can never forget it: Miss Wallace possessed this expression more than any of the other females. Luning had the appearance of one of the oldest men I ever saw in my life, and just such as I could fancy in a person of his age; but it was completely eclipsed by that of Eldrich, who was a veritable patriarch, with locks of silvery grey hair reaching to his shoulders, and a beard of a similar colour, his countenance at the same time being one of angelic benignity and sweetness, altogether giving him the look of extreme veneration. Indeed, I must say I never saw a sweeter expression on the face of any human being of his sex before. There was no mistaking his great age; he bore a striking resemblance in the form of his face, head, and features generally to the late Sir James Simpson of Edinburgh.

The function of *Digestion* was performed in all with perfection; none had ever reason to complain of any deficiency of power in this respect. The gastric and other secretions seemed to be possessed of strong powers to act upon whatever was taken in the way of food, and there was always an appetite for food, the general health being invariably good. The frequency of eating varied somewhat in most of the six, for some were satisfied with from three to four meals a day, whilst Miss Wal-

lace ate seven times in the twenty-four hours, although she had a difficulty in mastication, yet her teeth were good. She ate raw cucumber up to three or four years ago, and is fond of gooseberries and other fruit. The eldest of the six, Eldrich, had three meals only a day, with half a pint of beer for dinner, and afterwards smoked a pipe of tobacco, which he greatly enjoyed. It is well known that if the food is not properly masticated indigestion is generally the result, and without sufficiently good teeth mastication is not easy. It may be mentioned that all had fairly good teeth, except Mrs. Paterson, who had none at all, and whose food was given in a suitable form to remedy this. But in the others the teeth were the same they had masticated with when young; and in Mrs. Hogg so perfect and white were they that they resembled a set of new teeth. From what I could gather, the diet in all was simple and plain; Luning generally consumed a large piece of beef-steak daily.

Having said this much relating to the three great functions of life, a few words will not be amiss upon the *Special Senses* and *Mental Faculties*, and, firstly, of the *Sight*. In all six it was perfect: the eyes were quite clear, mostly of a grey or bluish-grey colour, free from any arcus or annulus, as is usually seen in persons over seventy—that is a circular ring, or only an arch of a whitish or yellow colour along the outer margin of the cornea, or transparent portion of the eye; if I might venture to say so, there was a pale narrow whitish rim around the extreme margin of the entire cornea, at its junction with the sclerotic coat, but it could not be pronounced an annulus. With this clear condition of the eye, the sight was excellent, and all could read ordinary type without spectacles, except Mrs. Paterson, who had used them for fifty-five years, since she had an attack of erysipelas of the head.

The sense of *Smell* in every one was fairly good; none used snuff nor chewed tobacco, and none smoked with the exception of Eldrich, as already mentioned.

The only faculty that seemed to be impaired was *Hearing*, and that varied somewhat. Luning had been deaf for twenty-five years, but could hear very loud tones; in the other old man, Eldrich, the hearing was most acute, for he could hear the slightest sound. Mrs. Hogg is deaf now, but can hear moderately loud speaking. Brown's hearing was better, for though she was slightly deaf she could hear ordinary conversation. Wallace and Paterson hear quite well to the present hour. The hearing, therefore, in the six is, that four could hear quite well, and two were deaf.

The *Mental Faculties* were active and unimpaired in all, which would seem to be a general rule with all centenarians, as the

fact is invariably mentioned when a record of the death of one appears in the newspapers. This shows that the great centre of the nervous system, the brain, is perfect in its integrity, and nothing more thoroughly testifies to the correctness of the great and important fact of a complete absence of any of those changes common to ordinary old age. Yet these changes have been believed to be present in an extreme degree in centenarians, but I think that has been completely disproved; for if any of them were present, the mental faculties would become dim and obscured and the intelligence imperfect. Whereas in the six centenarians not only was this last condition perfect, but the memory was good, indeed very good, except perhaps in Luning, and I infer that the difficulty in him was the deafness. I regret to say that the intelligence is now becoming a little impaired in Eldrich, 104 years of age, and fear that this is the precursor of more serious changes.

Taking, then, the condition of mind and body presented by the six centenarians who have formed the subject of this paper, it may be said that in all there was an entire absence of those changes which are usually observed in persons ordinarily approaching the allotted period of threescore and ten. These changes have reference chiefly to the condition of the blood-vessels and other tissues, into which I need not enter in this place. Suffice it to say, that perfect composure of mind throughout life has had much to do with the condition of body permitting the attainment of such extreme longevity; and, so far as I have been able to make out, there has not been present any hereditary condition likely to interfere with Nature's laws under such circumstances. In one of the six individuals, Miss Wallace, longevity would appear to be a family peculiarity, for she has a sister alive upwards of ninety, and lost one a short time back at the age of ninety-six; her brothers, Sir Maxwell Wallace, one of the heroes of Waterloo, and Mr. Wallace, of Kellie, of cheap postage notoriety, died some years ago at the age of eighty.

Physically speaking, there is nothing to prevent the extreme limits of longevity being reached in those persons in whom all the conditions favourable to its occurrence exist, and it matters not whether the climate is severe or mild. I mention this, because numerous instances are related of extreme longevity in such a severe climate as Russia and in Sweden and Norway. The six cases here noticed occurred in our own more temperate one: Luning was a native of Hanover, but he had been the greatest part of his life in England; the others were natives of England and Scotland.

It may be taken as an established fact that, to reach centena-

rianism, not only must the constitution be naturally healthy and good, but all the great functions of life must be performed without impediment or derangement of any kind. If the special senses are co-ordinately good and acute, they assist in keeping up the conditions favourable to longevity. But, one change is especially antagonistic to extreme longevity, and it is the most important one; namely, the predominance of the atheromatous element which leads to those changes in the blood-vessels which close life at the natural period. Simplicity of regimen, and the avoidance of those elements of food—such as starch of potato, malt liquor, and cheese—which, in their assimilation, help to bring on these changes, may ward it off altogether; I believe that the six centenarians who have formed the subject of this paper were in some way particular on this point.

Howsoever extraordinary it may appear, it seems to me that most centenarians are tired of life: they wish it were at an end; it seems as if it were a burden; they feel isolated among their fellow-beings, and are thankful at last when it pleases God to remove them. Such I gathered in my conversation with Mrs. Hogg, who is still alive, and who is willing to live as long as she is permitted, although her life now cannot be considered an envied or a happy one. The lot of the other two females and the male is more contented, as they are surrounded by members of their family, who look after them with care, and treat them with the utmost kindness.

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POSTSCRIPT.—Since the foregoing paper was read, I have seen three additional centenarians; namely, Sarah Skelton, aged 102, living in Bond Court, Walbrook, City of London, where she was born on May 24th, 1770; Sarah Debenham, aged 103, whom I saw at Sudbury, Suffolk, in company with my friend the Rev. Herbert Smith, and who was born at Melfort, near Bye, in 1769; and Mrs. Ann Slocomb, aged 100, whom I visited at Isleworth on May 30th, her birth having occurred at Send, near Guildford, April 17th, 1772.

The result of my examination of these three females confirms the conclusions I formed relative to the six centenarians described in the foregoing paper, so that I have nothing to alter or to retract. The mental faculties of Skelton and Slocomb were perfect; not so with Debenham, who had been imbecile from childhood, and an inmate of the Sudbury Workhouse for probably the greater part of her life; nevertheless, in other respects her special senses were acute, and her bodily activity remarkable, and she possessed a fair amount of intelligence. Skelton and Slocomb had coughs, and I suspect the former is now

phthisical. Slocomb is a little deaf, and has used glasses for many years; the others see well without them, and likewise hear well. Debenham and Slocomb have no teeth, Skelton has some. The voice is smooth, clear, and distinct, in all three—if anything, rather loud in Skelton—and the vocal apparatus in each is perfect. The silvery expression of the countenance was present in all—unmistakeably so in Debenham; and no changes had occurred in the heart and blood-vessels, the pulse at the wrist being soft and compressible, without any feeling of hardness to indicate thickening of the arterial coats.

Of the nine centenarians thus examined, two were males and seven females, but no conclusion can be formed from so small a number of the relative frequency of the sexes who attain to such a great age.

#### DISCUSSION.

Mr. T. McK. HUGHES remarked that it seemed agreeable to common sense that extreme longevity should occur in the case of those individuals whose organs for carrying on the circulation of the blood—that great restorer of the system—as well as those organs whose office it was to purify the blood, were in the most perfect working order. With regard to the supposed traditions of longevity in beasts, birds, and fishes, he would like to see clear evidence of the fact in every case adduced. He was quite aware of the popular belief, and quoted a Welsh triad to the effect that three times the duration of a dry fence was the age of a dog, 3 dog = man, 3 man = horse, 3 horse = raven, 3 raven = stag, 3 stag = oak. But, in that case, he thought the story might be explained by reference to the habits of the animals named. In the case of the raven, as the same pair of birds returned to the same crag to build year after year, and, as often as one died, the other brought a new mate, and the young were always driven away, it was easy to see how the father might hand down to son the story which he had himself heard in childhood, that the same birds had returned there for many generations of men. So in the case of the stag, as an animal of about the same age would always be the leader of the herd, the story would be believed and told that the same individual had led all the deer on that mountain side as far back as tradition could go. He thought that there were plenty of authenticated cases of longevity in plants and animals, and quoted the case of an albatross taken with a ring through its bill, bearing an inscription which, if put in at the date inscribed, proved the bird to be of great age. The rings of growth in a tree were more trustworthy tests of age; but in scientific inquiry we should reject all cases that are not well established.

Mr. C. WALFORD said he considered the subject of longevity especially suited to the consideration of the Anthropological Society, more particularly that aspect of the case which had been presented, he believed for the first time, by Sir Duncan Gibb this evening. That was the

aspect of the case which commended itself to scientific men. There was something really to investigate—something to learn. The old and traditionary view of longevity as presented by the first paper was too vague. Hufeland might be quoted for ever in favour of old age, and Cornaro might sing the praises of long life to the end of the chapter, but people would not believe in it until it had received some such demonstrations as Sir Duncan Gibb had given to it this evening. The want of such proofs had appeared to justify the otherwise untenable statements made by men of generally good information, that there were no real and undoubted cases of centenarianism. It required, indeed, a good deal of boldness to make such an assertion, when instances of centenarianism were found in the records of the numerous tontines instituted in this country, in which young and well-known lives were generally put forward as nominees, after exact and indubitable proof of birth, the dates being recorded, and the progress of each life being narrowly and jealously watched throughout its entire course. Were an instance required, he would name the well-known Cunningham family, of Edinburgh. Any one who pretended to doubt if ever an authentic instance had occurred, might satisfy himself in this case. Besides, where did the objectors draw the line of the limit of life? Do they admit 80, or will they tolerate 90 or 95? Do they ever go so far as 96, 97, 98, 99, and then suddenly stop? There was a good deal of clap-trap about these non-believers. He (Mr. Walford) had had occasion to investigate the subject very carefully for the purposes of a work he was now editing—the “Insurance Cyclopædia.” He had dealt with some 6,000 recorded cases of longevity. Of these some were accurate beyond all question; many were open to doubt, but not to the charge of impossibility. One case established, and the probabilities are good for a percentage of the entire population. The location of centenarians was a matter of much interest. He might some day trouble the Society with a paper on that subject. On the whole, he was well satisfied with the treatment the subject had received on this occasion. It was very decidedly a step in advance.

The CHAIRMAN said if Lord Bacon had asserted that man’s age exceeded that of all other living creatures, he must have included the patriarchs in his calculation. Without doubt the age of many animals exceeded that of man. The author of the paper seemed however to have corrected the assertion in a subsequent part of his paper. He (the Chairman) fully agreed with Mr. Harris, that people were really old when they were worn out, although they might not be very aged. Of course, when the peculiar combination called organic matter ceases, it becomes inorganic, and life is gone. He did not however agree with the author of the paper that as many people die from being worn out at 18 as at 80. It would be nearer the mark to substitute 30 or 35 for 18. No doubt intemperate people were often short-lived. A man who began to drink at 30 would frequently not last more than 8 or 10 years; a woman who commenced at 20, would often live 16 years; but those who died had not good constitutions. A great many drunkards were long-lived. Some lived to 100 and upwards.

The Irishman Brawn died at the age of 125, having lived in a state of intemperance for the previous 100 years, a fact which is recorded on his tomb. Mention of this case and of drunkards who had died very aged is made in Dr. Prosper Lucas's work, "*Sur l'Hérédité Naturelle*." As the author of the paper stated, in Italy and Cornwall there had formerly been a great deal of longevity. Longevity in Cornwall seemed to be proved by the fact that in the ancient Cornish language the term *gur gog* was used for great-grandfather's father, and *hen gog* for both great-grandfather's father and great-grandfather's mother. There are, however, many other parts of the globe noted for longevity, as Great Britain generally, France, Hungary, Finland, Norway, Russia, the Brazils, and India. Great longevity is also found among the Hottentots and negroes. According to French statistics, there are in France 170 centenarians to 10 million people (about 1 in 62,500); in England, 1 in 3,300; in Russia, 1 in 245. In the matter of climate, Dr. Lucas considered that "influence" has been mistaken for "cause;" and Buffon and others are of opinion that, as a rule, great longevity had its origin in the germ, and that age is not affected either by race, climate, food, comforts, diseases, or occupation. There is no doubt that longevity is hereditary. Rust, the physiologist, had never known an octogenarian in whose family there were not frequent cases of longevity. Mr. Harris spoke quite seriously of the age usually assigned to the patriarchs. Now, according to some authors, in Biblical times the year was a lunar, not a solar year. Others asserted that the ancient Oriental year was a period of three months, or at most of eight months. According to this, Methuselah, who died at 969, might have been about 592, 222, or 74 years of age, which latter is not a very great age after all. Indeed, if the assumed age of the patriarchs be correct, it is against our own experience, it being an admitted fact that the duration of human life has increased. The age of the patriarchs was by some attributed to the effect of certain waters upon the cartilages. It was however most probable that after the time of Noah the patriarchs did not drink water at all.

Mr. E. CHARLESWORTH exhibited a curious series of fossils from the Crag of Suffolk, the description of which, for want of time, was postponed till the next meeting, 8th April.

The meeting then separated.

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#### APRIL 8TH, 1872.

SIR JOHN LUBBOCK, Bart., M.P., F.R.S., *President, in the Chair.*

THE Minutes of the previous Meeting were read and confirmed.

ROOKE PENNINGTON, Esq., LL.D., Bolton-le-Moors, was elected a Member.

The following presents were announced, and the thanks of the meeting voted to the respective donors:—

FOR THE LIBRARY.

- From the IMPERIAL ACADEMY.—*Compte Rendu de la Commission Impériale Archéologique pour l'année, St. Petersburg. Atlas ditto, 1869.*
- From the EDITOR.—*American Eclectic Medical Review, Dec. 1871, Jan. and Feb. 1872.*
- From the SOCIETY.—*Proceedings of the Royal Geographical Society, vol. xv, No. 5, vol. xvi, No. 1.*
- From the ASSOCIATION.—*Nineteenth Annual Report of the Mercantile Literary Association of San Francisco, 1871.*
- From the EDITOR.—*La Revue Scientifique, Nos. 40 and 41, 1872.*
- From the EDITOR.—*The Food Journal for April 1872.*
- From the ASSOCIATION.—*Journal of the Royal Historical and Archaeological Association of Ireland, October 1871.*
- From the EDITOR.—*The Mining Magazine and Review for April 1872.*
- From JAMES BURNS, Esq.—*Human Nature for April 1872.*
- From the AUTHOR.—*Über prähistorische Gräber Polens, by Dr. H. Beigel, M.D.*
- From the SOCIETY.—*Sitzungsberichte der Physicalisch-Medicinischen Societat zu Erlangen.*
- From the ACADEMY.—*Memoirs of the American Academy of Arts and Sciences, vol. x, part 1.*
- From the MUSEUM.—*First, Second, and Third Annual Reports of the Trustees of the Peabody Museum, 1868-69-70.*
- From the AUTHOR.—*An Account of the Freshwater Shell-Heaps of the St. John's River, East Florida, by Dr. J. Wyman.*
- From the AUTHOR.—*Zanzibar, 2 vols., by Captain R. F. Burton, F.R.G.S.*
- From EUGENE MORRIS, Esq.—*A Catalogue of the Ethnographic Museum at Copenhagen, 1870.*

FOR THE MUSEUM.

- From EUGENE MORRIS, Esq.—3 Caffre necklaces, 1 shell necklace and a bone fish-hook, 1 divining necklace of sticks, 2 finished and 1 unfinished pipes, 1 apron, a Caffre spear, Scandinavian beer-jug.
- From T. J. HUTCHINSON, Esq.—12 Peruvian skulls.
- From Dr. J. BARNARD DAVIS.—4 Peruvian skulls.
- From MORTON ALLPORT, Esq.—A skeleton of a Tasmanian aborigin.

Mr. HYDE CLARKE made some remarks on the Hamath Inscriptions; but he has thought it of more use to the members to send the following note of the result of his investigations.

The Hamath inscriptions are written in alphabetic characters. These are not Phœnician, but belong to an older class, and

allied to the Himyaritic (of Adamæ Arabia, of Axum and Abyssinia, of Babylonia, and represented by the Ethiopic and Amharic or Abyssinian of the present day), but nearer to the Lybian of Carthage and Algeria, now represented by the Berber and Tamashok alphabets. The Hamath has also relations with the Cypriote, Etruscan, and Celtiberian. The characters are however distinctly of the hieratic, or old Babylonian cuneiform class. Two inscriptions are turned upside down (Nos. 1 and 2).

There can be little doubt that No. 5, containing the two hands, records a tomb or temple, stating the genealogy of the defunct, and including, as the hands indicate, a dedication to the gods, most likely Moloch and Baal. Two other inscriptions (Nos. 2 and 3) are also of the same class.

Mr. Clarke has not yet identified the language, but considers it may be Caucaso-Tibetan. The palæographic characteristics are rather in favour of the great antiquity of the inscriptions than otherwise; and it is quite possible they may be older in date than the Moabite Stone as they are older in character.

Mr. EDWARD CHARLESWORTH, F.G.S., exhibited and described a series of remarkable objects found in the Red Crag Formation of Suffolk, simulating human workmanship. Specimens were laid upon the table of sharks' teeth of the genus *Carcharodon*, which appeared to show traces of action of some artificial force that had perforated the teeth through their thickest part, almost identical in character with perforations exhibited in the sharks' teeth made by the South Sea Islanders of the present day. Mr. Charlesworth pointed out the conditions under which boring mollusca, as *Pholas* and *Saxicava*, perforate the texture of stones or other solid substances, and glanced at the perforating action of burrowing sponges (*Cliona*) and destructive annelides (*Teredo*). Reasons were given at length why these could not have produced such perforations as those now exhibited. The most searching and cautious examination was also bestowed to demonstrate that the perforating body, whatever it was, was coeval with the crag period; i.e., that specimens existed in which the true crag matrix filled up the hole from end to end, thus showing that it had been immersed in the crag sea after the period of its perforation. It was necessary, therefore, to eliminate all these inadequate causes, and to own that we have to search for some other agent which could have produced the extraordinary perforations in question. Mr. Charlesworth did not himself suggest that it was demonstrably proven that the perforations were produced by human agency, but he read a letter which Professor Owen had written that day, saying that, after careful examination, "the ascription of the perfora-

tions to human mechanical agency seemed the most probable explanation of the facts." The author had no theories to offer himself, but rather invited suggestions from every quarter.

#### DISCUSSION.

Mr. WHITAKER suggested that the holes might be due to decay, occurring as they did in the basal and more decomposable part of the teeth, and almost wholly in the thinner sort of teeth. He noticed that in one of the specimens there were holes in various stages of formation, from a slight indent to a clear perforation; remarked that the fact of the holes occurring chiefly in the middle of the fang might be explained by there being a line of weakness in that part; and concluded by requiring the greatest caution to be exercised in establishing the geological position of the bed from whence the specimens came.

Dr. COBBOLD stated that he deemed himself particularly fortunate in having had an opportunity of inspecting Mr. Charlesworth's specimens; for whilst hitherto, by the examination of true coprolites, of a kind totally distinct from the pseudo-coprolites or phosphatic nodules of the crag, he had sought in vain for evidence as to the existence of entozoa in past geologic times, he thought he now detected indications of the former presence of parasites in the cavities or borings of these shark's teeth. He might be altogether in error, but he respectfully submitted that these cavities would probably turn out to have been produced by trematodes which had encysted themselves after the fashion of their tribe. Although it might be said with truth, perhaps, that no entozoon had hitherto been known to take up its abode in the bones or teeth of fishes, it was notorious that parasites had no difficulty in getting access to the skeleton of the higher animals. Thus, in his treatise on the Entozoa, he had pointed to the remarkable habit of the larvæ of the *Tænia echinococcus*, which not unfrequently take up their residence in the shaft of the human tibia. However far-fetched the idea might seem to some members of the Society, he strongly suspected that a species of bisexual fluke had occasioned these so-called borings. Not improbably it would be a form of parasite allied to Professor Van Beneden's *Nematobothrium filarina*, which lies concealed in cysts of the lining membrane of the branchial cavity of a species of *Sciæna*. He would also add that there were several other species of bisexual trematode which temporarily encysted themselves in the region of the mouth, pharynx, and branchiæ of fishes. Thus, Wedd and Wagener found a monostome (*Weddii bipartita*) in cysts connected with the gills of the tunny (*Thynnus vulgaris*), whilst another kind of fluke (*Koellikeria fillicollis*) has been frequently observed in open follicles in the branchial cavity of Ray's bream (*Brama Rasi*). It might be that these views would gain no acceptance with naturalists; but Dr. Cobbold considered that it was fairly open to him to suggest parasitism as a cause of these cavities. At all events, he should entertain this view of the case until some other explanation of a more satisfactory kind had been offered. He had enjoyed abundant opportunities of

examining shark's teeth from these falsely called coprolite diggings of Suffolk, and he was well acquainted with the derivative conditions under which the teeth had been deposited.

Dr. COLLYER observed that it was a notorious fact that uncivilised men on every part of the earth's surface were actuated by similar propensities, and performed acts which were identical in their character. The same necessities had prompted the New Zealander, the Sandwich Islander, and the North American Indian, to habits and customs in common, though no intercourse has ever existed between them. He had carefully examined by aid of a powerful magnifying glass the perforated fossil shark's teeth, found in the Suffolk crag, exhibited by Mr. Charlesworth. The perforations, to his mind, were the work of man. His reasons were—First, the bevelled conditions of the edges of the perforations. Secondly, the irregularity of the borings. Thirdly, the central position of the holes in the teeth. Fourthly the choice of the thin portions of the tooth where it would be most easily perforated. Fifthly, the marks of artificial means employed in making the borings. Sixthly, they are at the very place in the tooth that would be chosen in making an instrument of defence or offence, or for an ornament in the form of a necklace. Seventhly, the fact that rude races—as the Sandwich Islanders or New Zealanders—have from time immemorial used sharks' teeth, and bored them identically with those exhibited. His reasons for supposing the perforations not to have been produced by mollusca, or boring-worms, or any parasitic animal, were—First, those creatures had invariably a purpose in making the hole for a lodgment; it was therefore evident they would not choose the thin portion of the tooth, which would be totally unadapted for the object sought. Secondly, there was no case on record of any parasite or mollusc or worm boring a fish's tooth. Thirdly, those animals had no idea that the exact centre of the tooth would be preferable to the lateral portion. Fourthly, had the holes been the result of animal borings, they would have presented a uniform appearance. As to the tooth being perforated by decay, that seemed to him the most extraordinary proposition. The appearance of a decayed tooth had no analogy whatever to the borings presented. Moreover, sharks were not subject to decayed teeth.

Mr. T. McK. HUGHES thought that there was no reason whatever for attributing the perforations of the fossils exhibited to human agency, though it might in some cases be difficult to explain exactly by what process of nature they had been produced. He pointed out that the opening at one side of the tooth was not always opposite to, or of the same size as that on the other. Some of the holes were larger inside, and irregular in form, like caves in limestone. Incipient holes occurred all over that part of the tooth not covered by enamel. Similar holes were found in bones and phosphatic nodules, not only from the crag, but from various other more ancient deposits, and notably in the phosphatic nodules of the so-called Upper Greensand. He considered them to be due chiefly to wear and decay along perforations commenced by lithodomi, boring gasteropods, or sponges, or, in some

cases, simply along the weaker or more soluble portions of the tooth, or whatever the fossil might happen to be.

Dr. CARTER BLAKE, while coinciding with most of the speakers as to the necessity of caution, failed to agree with Mr. Whitaker that the perforations in the hard osteodentine could have been produced by decay. Such action would not have produced regular and symmetrical perforations in one part of the tooth alone, and that the thickest part. Neither would a line of breakage account for the hole, as such line would be at the points of least resistance, and would have shown as a crack on the face of some of the specimens at least. Dr. Spencer Cobbold had suggested that some entozoon might have perforated these holes. He recognised Dr. Cobbold as the highest English authority on the entozoa; but was it not bold to speculate on the existence of a fossil entozoon which could perforate such a hard substance as the tooth of a shark, so much harder than the shaft of the human tibia in which the *Echinococcus* might, as Dr. Cobbold suggested, have burrowed? Dr. Collyer had spoken of a bevelled edge being visible in some of the specimens; there was certainly an erosion at the side of some of the holes, possibly produced by the erosion of a string, but a careful examination had failed to show the speaker evidence of the bevelment at the edge. He hoped that a committee would be appointed to make sections of some of the teeth, and so reconcile the apparent contradiction of fact between Mr. Charlesworth and Mr. Hughes as to the form of the internal cavity.

Mr. Flower, Colonel Fox, and the President also joined in the discussion.

Mr. CHARLESWORTH said that he hoped on an early day to bring before the Institute, in the form of a paper, his matured opinion on the facts presented that evening, with further specimens in illustration.

The papers announced for reading were postponed for want of time, Mr. Charlesworth's description, with the discussion thereon, having occupied the whole of the evening.

The meeting then separated.

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APRIL 22ND, 1872.

Dr. CHARNOCK, *Vice-President, in the Chair.*

THE minutes of the previous meeting were read and confirmed.

The following New Members were announced: BRINSLEY DE COURCY NIXON, Esq., Athenæum Club; HENRY GILBERT CAMMADE, Esq., Madras; the Rev. MAURICE PHILLIPS, Madras.

The following presents were announced, and the thanks of the meeting voted to the respective donors.

FOR THE LIBRARY.

- From the AUTHOR.—*L'âge du Renne dans le Nord de la France*, by M. E. T. Hamy.  
 From the AUTHOR.—*The Philosophy of Science*, by T. Squire Barrett.  
 From the SOCIETY.—*Bulletin de la Société d'Anthropologie de Paris*, Jan. and April, 1871.  
 From the EDITOR.—*La Revue Scientifique*, Nos. 42 and 43, 1872.  
 From the SOCIETY.—*Proceedings of the Society of Antiquaries of London*, vol. v, No. 3, 1871.  
 From the SOCIETY.—*Journal of the Royal Asiatic Society of Great Britain and Ireland*, vol. v, part 2.  
 From the EDITOR.—*Matériaux pour l'Histoire de l'Homme*, December 1871.

The following papers were read :

*A few NOTES upon the HAIR, and some other PECULIARITIES of OCEANIC RACES.* By J. BARNARD DAVIS, Esq., M.D., F.R.S.

THE extreme interest of oceanic races of man, many of whom present very great diversities, and are at the same time probably some of them the most isolated human beings upon the globe; the great obstacles to their study from remoteness and inaccessibility; the light they may be expected to throw upon many questions now agitated by writers upon monogeny and polygeny; upon the origin of species and of civilisation, when they are fairly studied by unprejudiced observers; and the fact that the slight remarks in the *Anthropological Review*, No. 29, April, 1870, have been deemed worthy of notice, induce me to add a few further facts, which have been communicated by a correspondent who was himself born upon an island of the Pacific, has made six voyages since 1863 round these islands, and visited a good number of them.

His first remark refers to Mr. Alfred R. Wallace's book, entitled, "*The Malay Archipelago*," which, he says, he read with the greatest interest upon his last voyage. He speaks in high terms of this valuable work, and exclaims, "It is, indeed, a pleasure—not so common as it ought to be,—in reading a book of travel to feel that it is written by so careful an observer; that everything he writes as matter of fact may be unreservedly believed. His account of the many tribes he met with is as graphic as it is valuable." This is important testimony from one who has wandered over the same ocean, and the highest compliment that could be paid to Mr. Wallace.

He goes on to say, "Still, I think Wallace has too limited a ground to found any theory of races upon. He feels this himself, and unfortunately enlists the observations of others, which, in this case, happen to be worse than useless, and might mislead. In vol. ii, p. 278, he writes, 'The same Papuan race seems to extend over the islands east of New Guinea as far as the Fijis'; and in the next page, 'a race identical in all its chief features with the Papuan is found in all the islands as far east as the Fijis'. In this debatable ground, where all the changes of the race might be expected to be found, Wallace's own accurate observation was needed. Beyond this", as he says, "the brown Polynesian race, or some intermediate type, is spread everywhere over the Pacific". My correspondent relates that he first visited these islands in 1863, with peculiar advantages, as he sailed in the Melanesian mission schooner, and thinks that they landed upon thirty-five of the islands. He adds, "I do not think that any one who had merely made the first cruise with us, even if he had not known a word of any of the languages, would have liked to speak of all these islanders as a race, or one race, or could have found any common feature among them to help him to identify them with any other race."

After this decisive testimony to the *diversity of the peoples of the different islands*, my correspondent goes on briefly to speak of his own observations of the natives of some of these islands. He says, "In some of the Islands of the New Hebrides group there are near approaches to the 'typical Papuan'; tall, black, curly-headed, or woolly, many of them with features quite Jewish. The Island of Apee, or Tasiko, is a good place to seek them at. At Leper's Island, and the north end of Whitsuntide, sufficient resemblance may be made out to the brown Papuan. In the Banks's group, a short, woolly-headed people are very seldom in any respect like their Papuan neighbours, yet are still less like the Malay. In the Island of Tikopia, which is one hundred and twenty miles north-east of the Banks's Islands, heavy, tall, stolid, light brown, straight-haired (Malays?) Polynesians are to be found. North of this again, at Santa Cruz, is a light-brown people, as tall as average Englishmen, with what would apparently be curly or wavy hair, if it were let alone. On St. Christoval to the west the people are short, generally black, but sometimes brown, sturdy, with every variety of feature, and hair from wool to just wavy. On Bellona Island, west of St. Christoval, are a tall, light brown, or olive people, with straight hair, like the Tikopians. At Ysabel, a little further west, the people are very short and slight, brown, with wavy hair, many of them with Mongolian features. At New Georgia one meets with a true black Papuan."

After this cursory description of the races of different islands, all tolerably near together, beginning with the Island of Apee in the New Hebrides group, my correspondent considers that he has established the position with which he set out, viz., *the wide differences that exist among the natives of these islands, even amongst those of the same group.* The differences extend to stature, and here are considerable, to colour, to hair, and to mental constitution, and the differences are strikingly observed in islands at not any remote distance from each other. It is these incontrovertible facts which, in his opinion (and I must acknowledge that their force is unquestionable), stand in the way of the classification of these various races under two or three heads. The basis of such a classification must be the existing differences; but, unless we shut our eyes to many of them, there is no possibility of comprehending the natives of many of the islands under such few heads.

Mr. Wallace regards the New Zealander, or Maori, as a form of "one great Oceanic or Polynesian race," and he would probably designate him "a brown Polynesian"; and he looks upon him as allied to the Papuan, the darker colour and more frizzly hair of the latter being the chief differences. It is apparently to this view of Mr. Wallace that my correspondent objects, when he says, "Born in New Zealand, and having lived there eighteen years, I shall not allow the correctness of Mr. Wallace's description of my countrymen. I always used to think them Malays; but let us call them Polynesians, which we find a convenient term to include all the eastern islanders—east, that is, of Fiji—and their light-coloured relations who speak dialects of the same language amongst the islands." The darker woolly-haired people we call Melanesians, which must be a mixed race, Mr. Wallace would probably designate 'brown Polynesians'; and he looks upon them as allied to the Papuans, the darker colour and more frizzly hair being the main differences. After attacking Mr. Wallace's views, he says, "I am not prepared to set up any other theory. If we assume the New Georgian to be a pure Papuan, for he perfectly answers the description, no possible admixture of this race with the Malay is likely to produce an Ysabel native. If, however, it can and has done so, what account are we to give of the San Christoval native, or of the Banks's islander?" Both these have been before described as very different.

He gives an important testimony to the truth of the doctrine of the late Mr. Crawford, that the Malay words in all the languages of the Pacific, "from Madagascar to Easter Island, and from Formosa on the coast of China to New Zealand", are simply introduced words. The presence of these words was formerly regarded as a chief bulwark of the ethnological notion of a great

Malayo-Polynesian race. Mr. Wallace had done this before. By the way, it may be stated that this doctrine, so clearly established by Mr. Crawford, has been much and frequently controverted in different ways. Now it may be considered to be fully established. My correspondent says, "Mr. Wallace is quite right, that the presence of modern Malay words proves nothing; that is, no admixture of Malay blood, for the Malay is a great wanderer".

He concludes with some miscellaneous remarks, which show the immense difference in the taste of these islanders and in their power of executing works of art, such as in canoe building, which it may be desirable to quote: "It is worth while noticing that, in the New Hebrides and Banks's group, canoe building is as badly done as possible; a log, hardly shaped at all, pointed at both ends, roughly hollowed out, with an outrigger fastened to it by two rough sticks laid across, is the Banks's Island and the New Hebrides canoe. It carries a mat sail. A voyage of eight or ten miles on a calm day is a great exploit for these islanders. The Tikopians and Santa Cruz people build sea-going canoes, which will sail on a wind. There is constant communication between Tikopia, Santa Cruz, and Tannaco (Duff Island). A Tikopian canoe, with a crew of three, was at Sugar Loaf Island in the Banks's group two months since. They stayed a month, and then set out home, over one hundred and twenty miles of open sea. Some years since, some Santa Cruz men found their way to the Solomon Islands. They built a new canoe, and set out to go over two hundred miles against the trade wind. The Solomon islanders build beautiful canoes, and ornament them profusely; but their voyages are made within sight of land, and in calm weather. The Solomon Islander ornaments everything he can, spares no pains about it, and has an excellent eye for proportion: the Banks's islander has scarcely an idea of ornament; he has no notion of making the pretty trinkets of shell, &c., with which the Solomon Islander adorns himself." In another place, he says the Tikopian is five feet eight inches average height, and one hundred and seventy pounds average weight. An inhabitant of another island is only five feet two inches, and weighs but one hundred and thirty pounds. The San Christoval natives do not average more than five feet three inches.

The further observations of my correspondent refer to the *hair* of the Pacific islanders, which, as he affirms, is often changed in colour by lime-washing. It probably will not be inappropriate to exhibit the different specimens of hair of the Oceanic races I have been able to collect by the kind contributions of my friends.

We have first of all the fine, long, *flowing* hair of the Philip-

pine islanders, the Bisagans (Sheet i). But in these islands *crisp* hair is seen to be characteristic of the Negritos (Nos. 4, 5), which is probably disposed to grow in tufts. A similar *flowing* hair is seen among the Australians, some specimens of which are *crisp* (Sheet ii). The Tasmanians, who present so many and such decided evidences of being a totally distinct race, had hair growing in short, twisted, cork-screw locks (No. 2). The hair of the Cingalese, including the aboriginal Veddahs, is seen also to be distinguished by the *flowing* character (Sheet iii). And it should be remarked that all the hair yet mentioned is of a resplendent dark, or black colour. The hair of the Sandwich islanders, or Kanakas, agrees closely in its *flowing* character with the specimens hitherto mentioned (Sheet iv). But there is this remarkable peculiarity among the Kanakas, that some of them have a bright yellow, or *red* hair. These people are called in the Sandwich Islands "Ehus" (No. 18). Of course, as in England, colours exist which pass gradually from the black to the red shade. And this may be said to confirm a remark made by that acute observer, Dr. Beddoe, the late President of the Society, that black and red hair are closely allied, and apt to occur in the same races. The hair of Maoris, or New Zealanders, Tahitians, Rarotongans, Samoans, and also of Marquesans, is of the same long, flowing kind, but mostly of finer texture. One of the specimens from the Samoan Islands is of a reddish colour (Sheet v, No. 17), which renders it probable that some bleaching process is employed occasionally. The hair of the Marquesan Islanders is not less coarse than that of some of the preceding races. It is well exemplified in what I take to be the woman's apron, or "Ahouaki." This also shows that the hair is often of two colours, a deep brown and a redder brown (Sheet vi). The natives of these islands use human hair for ornamental purposes, and frequently discharge its colour in their decorations. The natives of Savage Island are well known to plait hair beautifully into a string, or braid (Sheet vii, Nos. 13, 14). These braids of hair are used in the ornamentation of the beautiful pearl breast-plate exhibited. A voyager to Noukahiva, describing the costume of dancers, speaks of the bunches of white hair worn upon the wrists and ankles, and also of bunches of black hair depending below the knees. Among the specimens on the table, there are long locks of hair from the Marquesan Islands, neatly gathered into bunches by native fibres plaited round them. The hair is of two colours—a deep brown, and a reddish brown (Sheet vii). Besides these, the hair of the beard is sometimes grown with great care, and bleached white for decorations, which are considered to be of much value (No. 4). An example on the table has been very neatly prepared by enveloping each lock in a

fibre, and plaiting the whole into three bunches, which are fastened together for an ornament of a conch-shell, or as plumes for the head; it is said to be an artificial beard.

From the observations of my correspondent, it appears clearly that the natives of the different Pacific Islands vary even in islands not remotely situated from each other in an extraordinary manner. The appearances of their hair as now exhibited show an equal diversity. All the different kinds of hair, however, belong to the great class of *oval*, or *elliptical*, hairs of Dr. Peter A. Brown, according to the forms of their sections. And it is well known that the degree of the departure of the form of hairs from the cylindrical is the measure of their tendency to curl. Cylindrical hair, like that of the North American Indians, is straight or lank. The hair of Europeans, which is of oval form, has a tendency to curl, or is flowing, or inclined to fall into graceful locks. Whereas the hair which is more elliptical, or eccentrically elliptical, has a much stronger tendency to curl, which tendency is exactly measured by its degree of departure from the cylindrical form, until we reach the delicate ribbon-like hair of the Tasmanians and Mincopies, or Andaman Islanders, when the tendency to curl is irresistible, as it is equally in the fine, almost flattened, wool of the African negro—for all the arts of the negresses cannot prevent their flexuous wool from twisting. In the Pacific Islanders may be seen every degree of this flexibility. In the Bisayans of the Philippines, as has been before said, we see the same flowing locks which are the pride of Europeans. These occur also among the Kanakas, the Maoris, and the Australians. As the ellipticity increases, the hairs become crisply curly in infinite degrees. This is well exemplified in the various specimens of hair exhibited from New Caledonia, and from the different islands of the New Hebrides group (Sheet ix and x), Solomon Islands, &c.

The strong, natural curliness, or tendency to twist, is extensively availed of by the fashion which prevails in some islands of allowing the hair to grow in long, slender, twisted locks, good examples of which are seen in the specimens from Leper's Island, a small island of the New Hebridean group (Sheet x, No. 1). The lock of this twisted hair from Leper's Island is nearly twenty inches long. These locks vary in colour from a reddish brown; and some of them appear to have been bleached by art. Individuals adorned with these locks must be true Papuans, or mop-heads. But the highest degree of flatness or ellipticity is also attained by inhabitants of some islands of this group, as shown in specimens from the Island of Tanna (Sheet vii, Nos. 9, 10). The Tasmanian hair and that of the Mincopies is the same (Sheet ii, No. 2, and also Sheet xi, No. 17).

It is a common practice with those who have this kind of hair, which not unfrequently grows in separate tufts scattered over the head, with bare spots between them, to encompass each lock of hair as it grows out of the head with a flat vegetable fibre, which is wound round the lock of hair so as to separate it from its fellows (see the bunches of Papuan hair on the table). In this way the true mop-head is produced. On other occasions, instead of winding each lock separately and isolating it, they use wooden combs of two or three prongs, or even long skewers or sticks, and by these tease out the hair into a voluminous mass, so that the head would hardly go into a bushel. This is done occasionally in the Fijis.

Specimens of bleaching, or discharging, the colour of the hair abound in the hair exhibited. The practice prevails in a great many islands, and is seen among the New Caledonian hairs, those of the New Hebrides, Marquesans, &c. The colour is usually discharged by caustic lime, procured by burning sea-shells. In the extraordinarily fine specimen of the hair of a man from the Island of Santa Cruz, which is near the Solomon Islands and the New Hebrides, and to the north of Banks's Islands, may be seen particles of the shell-lime used to discharge the colour still entangled in the long flexuous locks of crisp hair, which have been prepared to be worn as ornaments (Sheet XII). Cocoa-nut fibre has been added to one of them to increase its effect, just in the same manner as the Chinese increase the volume, and especially the length, of their tails with black silk, and our own ladies by means of hair-pads.

These details respecting the diversity of the hair of the different islanders of the Pacific point out the untenableness of the late Mr. Pritchard's position, that the fashion of the hair of these islanders depended entirely upon the caprice of the owner, who could convert his straight locks by artificial teasing into the cork-screw locks of the Papuan, or Mincopie; and even in a few days, in a whim, turn them back again. The natural conformation of the hair, which lies at the base of its appearance, must always be taken into account, and this conformation will effectually preclude such transformations.

In putting these few notes together, there was a delicacy in announcing the source from which they were derived, unless a previous permission could have been obtained. A sad and melancholy occurrence, briefly announced in a telegram just received from Australia, puts this reserve on one side, for it tells of the massacre of the author, the Rev. J. Atkin, and of Bishop Patteson, on landing upon the islet of Inkepu, of the Santa Cruz group. This latter is the island from which Mr. Atkin obtained some of the most curious specimens of hair now exhibited.

The following note was read :

"Raikote, Kattiâwâr, Bombay Presidency, Oct. 14th, 1871.

"DEAR SIR,—I have forwarded for the Museum of the Institute, by a friend proceeding to England, the hair of a man who died last month at the Civil Hospital : it will prove, I trust, of sufficient interest to secure for it a place in our fine collection. The following are the details I have been able to gather regarding the owner of the hair.

"Narayen Geer, aged 28 years, a native of Hindustan Proper, a fine-looking man, regular features, skin light brown. By caste he was a Brahmin, but had been induced at the age of 12 to turn fakeer, or religious mendicant. He belonged to a class of fakeers called Guzeins : they belong to different castes, and it is exceedingly rare to find among them high caste Brahmins like Narayen Geer. The castes to which most fakeers belong are the Zeree, Puree, and Barpee, and are met with all over India.

"Narayen Geer was a great man among his people, and was held in much esteem by the gentry of this province ; he never begged, but used to accept presents from his friends sufficient to give him the simplest necessities of life. He lived for many years in a small temple dedicated to Mahaden, at a place called Babra, about forty miles from this place ; there he used to preach, or went to the neighbouring villages on missionary tours. From the day he adopted the fakeer life, he allowed the hair to grow ; the hair would represent the uninterrupted growth of sixteen years. He was very careful, and used to take much trouble to keep it clean, and every day spent a good hour brushing and cleaning it. He had never been married, and it is said he never had connection with women ; his caste people would not have allowed him to keep his long hair had he been guilty of unchastity. He remained for several months at the Civil Hospital, where he had come to be treated for an enlarged spleen ; he was always very respectful, quiet, and of a retiring disposition. He was on the point of returning to his temple, when he was suddenly seized with double pneumonia, and died a few days afterwards. At first, the Guzeins who had assembled to perform his funeral objected to my cutting off his hair ; but when it was explained that it would be sent to England, they permitted me to cut it off.

"Believe me, yours sincerely,

"H. BLANC, M.D., F.R.G.S., M.A.I.,

"Surgeon H.M.I. Army, Civil Surgeon, Raikote.

"To the Secretary of the Anthropological Institute of Great Britain and Ireland, London."

## DISCUSSION.

Mr. ILTUDEES PRICHARD said he did not pretend to have studied the subject from a scientific point of view; but, as he thought it was very desirable that those whose lot had led them to travel in foreign countries and distant parts of the world, and who had thus enjoyed an opportunity of seeing and observing many different types of the human family, should, when they happened to be present at scientific discussions like the present, give the meeting the benefit of their experience. As regarded the question at issue, whether or not different races of the human family might be distinguished by difference in their hair, he would remark that he had the opportunity while in India of seeing at different times representatives from the races inhabiting almost all parts of the Asiatic continent. At the furthest limit of British territory on the confines of Afghanistan, in the bazaars of the city of Peshawur, you might meet with people from almost every part of Asia. In the course of his wanderings over other portions of India, he had met with representatives of almost all the tribes of India, including the descendants of the aboriginal tribes inhabiting the country before the invasion of the Aryan conquerors of Hindustan. In all these cases there was a remarkable similarity in the hair, not only in the texture and general appearance (so far as it presented itself to the eye, for he, Mr. Prichard, had not subjected it to microscopic examination), but also in colour. And he thought it not unworthy of remark that, while the colour of the hair in the European races differed so much, the colour among Asiatics appeared to be uniformly jet black. The length to which it was allowed to grow was also remarkable: some of the Indian races, the Sikhs especially, allowed their hair to grow to enormous length, often as long as the specimen on the table. He (Mr. Prichard) begged to offer these few remarks for what they were worth, not as the result of scientific research, but merely the result of observations of facts which had come before his notice.

Dr. CHARNOCK agreed with Messrs. Crawford and Wallace that the Malay words in the Oceanic dialects were introduced words. It was not difficult to understand how these words had found their way into the languages in question, if we take into account the large number of islands between the Malayan Archipelago and the Oceanic group. It was not so easy to understand how it happened that there was so great a resemblance between the languages spoken in the Marquesas, which are south of the equator, and those spoken in the Sandwich Islands, which are north of the equator, considering the great distance between the two groups and the few intervening islands. The main difference between the Mawi and Hawii, and the dialect spoken at Hiwaoa and Tahuata, consisted in the mutation of certain radical letters. It had been stated that some of the people of the Sandwich Islands who had a bright yellow or red hair, were called *Ehus*. The word *ehu* signifies red hair. [Kanaka means man; *ka-poe-kanaka*, men.] He (Dr. Charnock) was inclined to think that neither the quality, condition, nor colour of the hair was of any value in relation to race. One of

the reasons given by Herodotus to show that the Colchi were the same people as the Egyptians was that they had woolly hair. The historian probably mistook the woolly helmets of the Colchi for woolly hair; but assuming that these people had curly hair, as one translator renders the passage, it is a fact that at the present day none of the peoples of Mingrelia have curly hair. Then as to the colour of the hair. The hair of the Gauls was probably yellowish, or reddish. Now, the French, the Keltic Irish, and the Highland Scotch are one and the same people; but the two former have to a great extent dark hair, whilst the latter have light hair, sometimes yellowish, sometimes red, and often black. The fact is, there is no doubt that during the last 2000 years, in most parts of Europe, the human hair has been gradually getting darker. In ancient authors the Gauls are variously stated to have had *rutilæ comæ*, and *rutilatæ comæ*. The former, of course, means red, reddish, or yellowish hair; but it has been asserted that *rutilatæ* must mean "dyed red." This is no doubt one of its meanings; but the word *rutilatæ* also signifies simply "red, reddish, or golden-coloured." Further, it is hardly probable that a whole nation would dye its hair, and if it did, it is more reasonable to suppose that it would dye from a light than from a dark colour. This remark was necessary, because it had been asserted that the ancient Kelts had dark, not light hair.

Mr. Luke Burke, Captain Bedford Pim, Dr. Richard King, and Mr. W. B. Martin, also spoke.

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The following paper was read.

*On the DESCENT of the ESKIMO.* (An article in the "Mémoires de la Société Royale des Antiquaires du Nord"). By HENRY RINK, Director of the Danish Colonies in Greenland. Contributed by Dr. Rink.

THE author, who has travelled and resided in Greenland for twenty years, and has studied the native traditions, of which he has preserved a collection, considers the Eskimo as deserving particular attention in regard to the question how America has been originally peopled. He desires to draw the attention of ethnologists to the necessity of explaining, by means of the mysterious early history of the Eskimo, the apparently abrupt step by which these people have been changed from probably inland or river-side inhabitants into a decidedly littoral people, depending entirely on the products of the Arctic Sea; and he arrives at the conclusion that, although the question must still remain doubtful, and dependent chiefly on further investigations into the traditions of the natives occupying adjacent countries, yet, as far as can now be judged, the Eskimo appear to have been the last wave of an aboriginal American race, which has spread over the continent from more genial regions, following principally the rivers and water-courses, and continually yield-

ing to the pressure of the tribes behind them, until at last they have peopled the sea-coast.

In the higher latitudes, the contrast between sea and land, as affording the means of subsistence, would be sufficient to produce a corresponding abrupt change in the habits of the people, while further to the south the change would be more gradual. The water-courses which may have led the original inland Eskimo down to the sea-coast might probably have been the rivers draining the country between the Mackenzie and the Athna rivers (? Athabasca).

The same country also seems to afford the most probable means of explaining the uniformity observable in the development of Eskimo civilisation, which to some extent is still maintained amongst them upon the rivers and lakes in that part of America. This development must have been promoted by the necessity of co-operating for mutual defence against the inland people; but as soon as a certain stage of development was attained, and the tribes spread over the Arctic coasts towards Asia on the one side and Greenland on the other, the further improvement of the race appears to have ceased, or to have been considerably checked.

The author draws a comparison between the Eskimo and the nations adjoining them, both in Asia and America, in regard to their arts of subsistence, language, social laws, customs, traditions, and other branches of culture, particularly dwelling on their traditions, of which he has collected a great number from all the inhabited places on the east side of Davis's Straits, together with some from East Greenland and Labrador. He shows that an astonishing resemblance exists between the stories received from the most distant places, as, for instance, between those of Cape Farewell and Labrador, the inhabitants of which appear to have had no intercourse with each other for upwards of a thousand years. As the distance from Cape Farewell to Labrador, by the ordinary channels of Eskimo communication, is as far as from either of those two places to the most western limit of the Eskimo region, it may be assumed that a certain stock of traditions is more or less common to all the tribes of Eskimo. The author's studies have led him to the following conclusions: 1. That the principal stock of traditions were not invented from time to time, but originated during the same stage of their migrations, in which the nation developed itself in other branches of culture; viz., the period during which they made the great step from an inland to a coast people. The traditions invented subsequent to this are more or less composed of elements taken from the older stories, and have only had a more or less temporary existence, passing into oblivion during the

lapse of one or two centuries. 2. That the real historical events upon which some of the principal of the oldest tales are founded, consisted of wars conducted against the same hostile nations, or of journeys to the same distant countries; and that the original tales were subsequently localised, the present narrators pretending that the events took place each in the country in which they now reside—as, for instance, in Greenland, or even in special districts of it. By this means it has come to pass that the men and animals of the original tales, which are wanting in the localities in which the several tribes have now settled, have been converted into supernatural beings, many of which are now supposed to be occupying the unknown regions in the interior of Greenland.

In accordance with these views, the author explains some of the most common traditions from Greenland as simply mythical narrations of events occurring in the far north-west corner of America, thereby pointing to the great probability of that district having been the original home of the nation, in which they first assumed the peculiarities of their present culture. The Greenlanders' tales about "inland people" are compared with what is known about the present intercourse of the Eskimo with the interior of that part of America, such as instances of relationship between the people of the coast and the interior, sudden and murderous attacks of the latter, and a very remarkable story about an expedition to the interior for the purpose of getting copper knives from the inland people. Lastly, there are some tales about a country beyond the sea called Akilinek, and about the training of wild animals for sledge expeditions to this country, in order to recover a woman carried off by some inhabitants of that country. When we consider the existing intercourse between the inhabitants on both sides of Behring Straits, we find many circumstances to justify the conclusion that those traditions of the Greenland Eskimo refer to the origin of the Eskimo sledge-dog from the training of the Arctic wolf, to the first journeys upon the frozen sea, and to intercourse between the aboriginal Eskimo and the Asiatic coast.

#### DISCUSSION.

Dr. CHARNOCK said the author of the paper referred to the traditions of the Eskimo, to their having formerly inhabited the inland country, and to their having reached the sea-coast by means of the rivers; and he also spoke of a last wave of an American aboriginal race, but he did not seem to have arrived at any conclusion as to the origin of these people. Whether or not they have anything in common with the Southern Indians of America, he (Dr. Charnock) did not know; it was quite clear that neither in physique, language, nor in anything else did they agree with the Indians of the North, who were, besides,

their enemies. Some writers were of opinion that in physique and in other respects they resemble the Tshuktshi, who occupy both coasts of Behring's Straits. Those of Asia are spread over a large part of the north-eastern extremity of Siberia, and are probably of Mongol origin. Many words in the Eskimo dialect agree with that spoken by the Tshuktshi. The former does not differ materially from the dialects spoken in the Aleutian Isles, the peninsula of Aliaska, the island of Kadjak, and the peninsula of Tshugashi, which two latter lie eastward of Aliaska. The Eskimo also agree in physique to some extent with the Ainos, some of whom are hardly five feet high. The latter inhabit the Japanese island Yeso; Sahalien oula chata, otherwise Tarakai, a large island off the coast of Mandshuria; the Asiatic coast from north of the Sahalien oula or Amur southward to the boundary line of Korea; the Kurile Isles, and the most southern extremity of Kamchatka, near Lopatka. He (Dr. Charnock) had not yet had an opportunity of comparing the dialects of the Ainos with that of the Eskimo. One of the names which the Eskimo call themselves is *Inuit*. In the Malemute (Northern Aliaska) dialect, *inuet* is a man. Hobbs's Eskimo vocabulary gives *ang-hoot*, a man; the Greenland dialect has *angut* and *innuit*. All these would seem to resemble the word *Aino*, which is a self-imposed name, signifying "men." Again, the appellation *Tshuktshi* is said to be derived from a word *tshetto*, signifying "people."

Captain BEDFORD PIM said: The question as to how America was originally peopled is one of very great importance, and, so far as I know, there is nothing authoritative known on the subject. The remarks of Dr. Rink, who has lived twenty years amongst the Greenland Eskimo, are no doubt a valuable contribution to this little understood subject; but I fear that the traditions of the Eskimo, even supposing you could unravel them, would throw little light on their early history. So far as I could make them out, they consisted rather of exploits, either against their enemies the neighbouring Indians, or in the chase. Their notion of a Supreme Being, a subject not depending upon tradition, is vagueness itself. They consider the earth was formed bit by bit by the raven, and yet they were the first to point to that bird as a good mark for our guns. I cannot, therefore, believe that any reliance is to be placed upon the traditions of such a people, even admitting that they have traditions. No; the origin of the Eskimo will not be discovered by such stories as they repeat in their *jourts*; the light of modern science must be brought to bear upon the subject—that inquisitive research which has rescued so much from pitchy darkness during the present century. One remark upon the subject may be worthy of notice in respect to the Eskimo being the last wave or ripple of a wave from the south. One of the earliest members of this Institute (with whom I have travelled over the greater part of the earth's surface), the late Dr. Seemann, fully indorsed this view, because, during a journey to Durango, in Mexico, he remarked in the burial places of the Aztecs that well-known labret worn by the western Eskimo lying on each side of the jaw of every

Aztec skeleton; and he inferred, I think very naturally, from this fact, that the custom had been brought from the south. I am inclined to agree with this supposition, for I have not seen labrets amongst the Kamtschadales; nor do I think such a custom exists further north among the Tschuski on the Asiatic side, who are near neighbours of the Eskimo, only separated by a forty mile strait (Behring's), which is constantly crossed on trading journeys. Captain Pim, with a view to illustrate their intelligence, then gave an account of some customs of the Eskimo, especially their mode of killing that formidable animal, the white or polar bear (*Ursus maritimus*); and concluded by expressing his belief that the Eskimo were pure American aborigines, and not of Asiatic descent; but that, of course, would be mere conjecture until such an array of facts was collected as would take the Eskimo origin out of the thick darkness in which, at present, we were only groping our way.

Dr. King and Mr. Lewis also joined in the discussion.

The following paper was read.

LE SETTE COMMUNI. By Dr. R. S. CHARNOCK, V.P., F.S.A.

The district of Le Sette Comuni, which is situated nearly north of Vicenza, is a high tableland between the rivers Asiatic and Brenta. Its territorial extent is about one hundred square miles, and it consists principally of lofty mountains and cliffs, intersected with narrow and sterile vales. The names of the seven communes are Asiago, Ennengo, Gallio or Gellio, Fozza or Foga, Rozzo, Roana or Roviano, and St. Giacomo. There are also several scattered villages, which form part of Le Sette Comuni. [Among other communities which formerly constituted part of Le Tredici Comuni are Lugo, Salceto, Lusiano, and Roverete.] Le Sette Comuni may be visited either from Feltre and Valstagna; from Schio; or from Primolano; the two latter being the most desirable routes for taking in the whole of the communes.

In August 1869, I visited all the communes except St. Giacomo, which lay somewhat out of the way. My route was from Primolano to Schio. There are several theories as to the origin of these communes. According to oral tradition of two centuries, the Sette and Tredici Comuni are representatives of so-called Cimbri and Teutones, who crossed the Alps, A.U.C. 640, to escape the sword of Marius, and took refuge in the mountains. But, says Hormayr,\* quite as old and more reasonable is the tradition that they are Low Germans from the neighbourhood of Cologne, who partly fled there, and partly came there to work in the silver and copper mines for the bishops of Trent, and in

\* Hormayr, Jos. Gesch. d. gef. Grafschaft von Tirol, Tüb. 1806-8. Conf. "Notes and Queries", 2nd, s. vi.

the neighbourhood of Vicenza or Belluno. Again, it is said that Frederick IV of Denmark, who visited *Le Sette Comuni* in 1708, discoursed with the inhabitants in Danish, and found their idiom perfectly intelligible. This is impossible, because the language is very different from the Danish; and Mr. W. M. F. Edwards\* observes, "that if they really spoke a Danish dialect, and were the descendants of the Cimbri vanquished by Marius, their affinity with the Galli, called Kymri, could scarcely subsist, unless we suppose that at the time of Marius they had changed their language." Further, none of their local names would seem to be of Keltic origin. S. Giacomo was named after a saint, and Ennego perhaps from S. Eneco, found Henneco, i. e., Inigo.

Pezzo† quotes a passage from the Saalbuch (Register) of the Hochstift belonging to the second half of the twelfth century, which is not unimportant: "Omne bonum Episcopus veronensis investivit Cimbrium archipresbiterum plebis calavenæ et ejus successores in perpetuum de ecclesia Sancti Mauri in Salinis"; from which he concludes that the high priest of this hamlet of *Le Sette Comuni* had borne the name of Cimbric at so early a date. But this is no proof whatever, inasmuch as from other Veronese documents it appears that Cimbrius was the proper name of the bishop himself.‡ Pezzo also quotes the Lombard text of Paul Diaconus (a writer of the ninth century) to the effect that the village and valley of Cembra in Tirol (at the entrance of the Fleimserthal) owe their name and origin to the Cimbri. But, as Hormayr remarks, Paul Diaconus§ only mentions the name Cimbra among the names of the castles destroyed in 590, during the feud of Childebert with the Lombard King Autharis, while there is not a word about the Cimbri.|| "When we compare", says Hormayr, "the great similarity of their language with the remains of the language of the Alemanni, what is more probable than that they should be descendants of that large host of the latter people whom Chlodovic, A.D. 469, overcame near Cologne, and whom the East Gothic King Theodoric received with open arms in the depopulated Rhetia. Great part of them may also,

\* Descr. Caractères Physiologiques des Races Humaines, 1829, p. 107 at seq.

† Pezzo (Marco), *Dei Cimbri Veronesi e Vicentini*. Verona, 1763. 8vo.

‡ Hormayr.

§ Book 3, chap. xxi.

|| Pezzo makes a still more unhappy attempt to prove the Cimbric descent of the *Sette* and *Tredici Comuni*. He refers to the fact that among them are found families of the name of *Cimberle* and *Cimberlini*, and that the hatchets used for the hewing of trees are called *Cimberake*. But this does not refer to the *Cimbri* but to the *Zimmeren* (i. e., the joiners), who in German Tyrol call these hatchets *zimbern*; and who also pronounce *simmermann*, *zimbermann*.

in later times, have settled in these important narrow passes, and have the same origin as the German colonies in Rheinwald, Tenna, Avers, and Savien (in Switzerland), established by the Emperor Frederick the Red Beard, in Upper Rhoetia." But the origin of the Sette Comuni has been since (in 1828) set at rest by Giovanelli, in his work, "*Dell' Origine dei Sette et Tredici Comuni e d'altre Popolazione Alemanne abitante fra l'Adige e la Brenta nel Trentino, nel Veronese, e nel Vicentino.*"\* Giovanelli consulted the authors who wrote during the epoch of the decline and fall of the Roman Empire, for the purpose of finding traces of any German people who might have established themselves in these regions before the invasion of the Lombards, and he proves that these so-called Cimbri and Teutones were merely a colony that settled in Italy during the reign of Theodoric, King of the Ostrogoths, who died A.D. 526. In the writers in question, he found authentic documents attesting such establishment and its epoch.† Ennodius, in his Panegyric of Theodoric in Italy, addresses the following words to the latter: "Thou hast received the Germans within the confines of Italy, and thou hast established them without prejudice to the other Roman proprietors of the land. Thus, this people have found a king in the place of one whom it deserved to lose. It has become the guardian of the Latin empire, whose frontier it has so often ravaged: it has been fortunate in abandoning its own country, since it has thus obtained the riches of ours."‡ A letter of Theodoric, King of Italy, written by Cassiodorus, and addressed to Clovis, King of the Franks, explains the cause and the circumstances of immigration. "Your victorious hand has vanquished the German people, struck down by powerful disasters. . . . But moderate your resentment against those unfortunate remnants of the nation, for they deserve pardon, since they have sought an asylum under the protection of your relatives. Be merciful towards those who in their terror have hidden themselves in our confines. Let it suffice that their king has fallen, together with the pride of his nation."§

The whole population of the communes amounts to 25,500;

\* Memoria del Conte Benedetto Giovanelli. Trento, 1828.

† Conf. "Notes and Queries"; s. vi.

‡ "Quid quod à te Alemanniæ generalitas intra Italiæ terminos sine detrimento Romanæ possessionis inclusa est, cui evenit habere regem, postquam meruit perdidisse. Facta est Latialis custos Imperii, semper nostrorum populatione grassata. Cui feliciter cessit fugisse patriam suam, nam sic adepta est soli nostri opulentiam." (Opera, 311, ed. 1611.)

§ "Allemannicos populos, causis fortioribus inclinator, victrici dextrâ subdidistis, etc. Sed motus vestros in fessas reliquias temperate; quia jure gratiæ merentur evadere, quos ad parentum vestrorum defensionem respicitis confugisse. Estote illis remissi qui nostris finibus celantur exterriti, etc. Sufficiat illum regem cum gentis suæ superbiâ cecidisse." (Cassiod. Var., l. ii, 41.)

that of the capital, Asiago, numbers 4670. The soil being throughout extremely poor, the pasture in the valleys and on the sides of the mountains is, with the exception of wood, the only valuable product of the district. The people are principally employed in the breeding of cattle, which, in the winter months, they are obliged to drive to the lower country for food. At the present day, quite two-thirds of the population of the communes would seem to be neither of German origin nor of mixed origin, but are pure Italians, and speak Italian. Even the rest of the people now bear a greater resemblance to the Italians than to the Germans, and I was told that there have been many marriages between the two nations. I however noticed many people with fair hair and German features. This was more especially the case among the women. The people are very simple in their manners, and honest, but are poor, dirty, ignorant, and superstitious. I noticed no cases of goitre or cretinism. They have no peculiarity of dress.

The German portion of the communes call their language Cimbri. (Pezzo designates his vocabulary "*Vocabolario Cimbrico*".) As I have before remarked, it bears no relation whatever to the Danish. One writer says that, out of eight thousand or nine thousand words, a vast proportion are identical with the ancient Theotisc (*i.e.*, ancient German), whilst those of the remainder, not assignable to the surrounding language, resemble that of Saxony. Had the language been of Cimbric origin, many words would no doubt have been preserved, but I find very few of Keltic origin in Pezzo's vocabulary. The dialect bears great resemblance to the Oberdeutsch\* of the thirteenth century, and to the language still spoken by the mountaineers of the Schlier—See and Tegern—See in Bavaria. It also agrees to a great extent with the dialect of Pergine, Roncogno, Lavarone, and Abtey. It has some words from the Italian, and perhaps a few from the modern German. The grammar has some peculiarities. In verbs compounded with prepositions, the preposition is always placed after the verb; thus, *treiben vor* for *vortreiben*; and instead of the genitive the preposition *va* for *von* is always used, as *a prueda va mutter* (in German *mutterbruder*). They usually change *w* into *b*—as *bässer* for *wasser*, *bintär* for *winter*, *bolf* for *wolf*; and *b* into *p*—as *perg* for *berg*. The dialect of Verona is even nearer the Oberdeutsch Kirchsprache than that of Vicenza. Cardinal Cornaro, Bishop of Padua, partly with the view of preserving the language and of ministering to the spiritual wants of his people, many of whom did not comprehend the neighbouring Italian, in 1632 caused the celebrated catechism of Cardinal Bellarmin to be

\* Hochdeutsch.

translated into the dialect of Vicenza. The title of the translation runs, "Der Kloane Catechismo von Z' Beloseland, vortraghet in z' gapracht von siben Kamein von a viar Gesang."\* I have not been able to discover any printed books in the language.

The following is the version of the Lord's Prayer of the Sette Comuni, in the district of Vicenza.

"Unsar Vatar, dear vume Himmele,  
Say dorkannet eur halgar Namen;  
Kerme eur Raich;  
Schai was jart (ihr) welt, wia in Himmel, a sho at Erda;  
Gebht us heite unsar Proat ufen allar Taghe;  
Un vorghet us unsare Schulle, wia wiar vorgeben den da saint us schullek;  
Un lasset us net fallen in pose Dink;  
Un boutet (behütet) uns vun Sunten, un vume Teivele. A sa sais."†

The version in the dialect of the Tredici Comuni of Verona is still nearer to the German. It runs thus:

"Vatter unser, du du pist in Himmelen,  
Gheheiligh say dain Nam;  
Und (uns?) zua keme dain Raich;  
Dain Bill geschieghe bie im Himmel, also auf Erden;  
Unser taglich Proat ghib uns haut;  
Und vorghib uns unsere Schiulden, als auch bier vorgeben unser Schuldighern.  
Und fuere uns nicht in Versuchung;  
Sonder uns erlöse von Ubel."‡

Pezzo's Vocabulary contains about seven hundred words; Hormayr's (which is rather more modern) contains about six hundred. The following list of words, with their equivalents in the dialect of Pergine and in German, will give some idea of the language of *Le Sette Comuni*.

LE SETTE COMUNI. §	PERGINE.	GERMAN.	ENGLISH.
Dorf,	dorf,	dorf,	village.
Praät (P., prodt, proat),	praät,	brod,	bread.
Perg (P., ech, pergh),	perg,	berg,	mountain.
Bässer (P., bacer, wasser),	wasser,	wasser,	water.
Staud,	staun, stand,	wald (Wachter, staude, frutex, Glos. Pez., nemorosa, studia-gaz),	wood.
Lemple (P., lamp, lamm),	lam,	lamm,	lamb.
Meer,	meir,	meer,	lake.

\* "In Seminarien von Padoba", 1842.

† Von der Italianischen Orthographie gereinigt in Büsching's Wochenbl., Th. 5, s. 319; und Björnsthöl's Briefen, Th. 2, s. 269. Conf. Adelung's Mithridates.

‡ Aus dem Deutschen Museum, 1778, B. 2, s. 134. Conf. Adelung.

§ The letter P. refers to Pezzo's work, published in 1763.

LE SETTE COMUNI.	PERGINE.	GERMAN.	ENGLISH.
Milch	mülch,	milch,	milk.
Bolf,	bolf,	wolf,	wolf.
Händ (P., hant),	hand,	hand,	hand.
Teuffl,	täiff,	teufel,	devil.
Kint,	kin,	kind,	child.
Foögele (P., foghel),	fugl,	vogel,	bird.
Pomelot,	unckraäs,	kreis,	circle.
Dirnä (P., dierla),	moed,	magd (Franco-Theotisc, dirne)	maid.
Bintär (P., binter).	binter,	winter,	winter.
Euchshen (P., ochs),	oerch,	ochs,	ox.
Glockä (P., klich),	kloch,	glocke,	bell.
Taveramän,	landmann,	bauer,	peasant.
Räät (P., roath, roth)	raät,	roth,	red.
Euba (P., sciaff),	schaf,	schaaf,	sheep.
Gluet (P., koll),	glovet,	kohle,	coal.
First (P., kenigh),	kunü, konü,	könig (fürst, princeps),	king.
Poon (P., scinck),	poä,	bein (Franco, bein, bain, pain; Belgic, been; Eng. bone),	leg.
Reute (P., acker),	felt,	feld (reute, a rooting out),	field.
Minschig (P., bene, wenig),	biönü,	wenig,	little.
Schbäin (P., sbain),	schbäi,	schwein,	swine.
Schuisse (P., siz, sice),	sies,	süss,	sweet.
Knotten,	knot,	stein,	stone.
Poom (P., pome),	paän (Dutch, boom),	baum,	tree.
Nässa (P., nase, nasen),	nosch,	nase,	nose.
Oär (P., oa),	aeü,	ei,	egg.
Liffer (P., funt)	liver,	pfund,	pound.

The meeting then separated.

## ANTHROPOLOGICAL MISCELLANEA.

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### THE AVARES, OR EASTERN HUNS.

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THE AVARES bear a name very familiar to the readers of Gibbon and of the history of Charlemagne. Byzantium and the Frankish empire of the west equally felt their arms. From the Don to the Rhine, from the Alps to the Baltic, their warriors ravaged and overran every corner of Europe. They effectually subdued the Slaves; and it was apparently under their leadership that these latter people overwhelmed Bohemia and Mecklenburg, occupying the old seats of the Marcomanni and the Vandals. They settled in Hungary and Austria, and probably gave to the language of the descendants of Theodorio's Goths those peculiarities we differentiate when we speak of High German or High Dutch, in distinction to Low German or Low Dutch. The Avares are, therefore, an important ingredient among the European races; and it is a subject of interest to the historian no less than the ethnologist to define their race-connections and to trace out their origin. The materials for such an examination are abundant, but they have not been critically used. In the following paper I shall offer a theory on the subject, which I believe to be, in a great degree, new, and which, I believe, explains much that is difficult in the ethnography of Western Asia in the sixth century.

Latham and others, who have been followed in the notes to Smith's edition of Gibbon and his "Dictionary of Ancient Geography", decide that the Avares were Turks mainly because their leader was styled khan. As if khan was not a title used by the Russians (Const, Porphy, etc.), by the Khazars, by the Mongols, and by the early Kirguises, none of whom were Turks—a title unknown to the more savage and unmixed Turks, such as the Jakuts, Barabinski, etc.—a title which is neither more nor less than the Chinese han, a dignity conferred on the greater vassals of the empire among the barbarians, and which is the surest test we have in early times that the race whose leader bore it was subordinate and subject to, or had intercourse with, China. Besides the use of the term khan, I know of no other good evidence for making the Avares Turks. Of the value of this the above facts are conclusive.

Vivien St. Martin and others have decided that the Avares, with the Khazars, Bulgars, Huns, etc., were all Ugrian or Finnish tribes, descended from a common nest at the foot of the Urals, and related

most closely to the Voguls of the present day. This view is more reasonable than the last, and much more generally held. In fact, it has been supposed that, if we exclude the Turks, we must decide in favour of the Ugrians as the parent stock of all these tribes. In a former paper on the Khazars, I have tried to show that the alternative is not confined to Turks and Ugrians, and that, as far as the Khazars are concerned at least, the overwhelming evidence goes to show they were the ancestors of the Circassians. How about the Avares? who were they?

Theophylactus Simonocatta, who wrote a history of the Emperor Maurice (A.D. 582—602), has left us more valuable materials than all the other Greek writers for the elucidation of the question. I will quote his words at length. He says that, "having conquered the Ephthalitæ, and joined their country to his own, the Turkish khan also conquered the nation of the Abari. *Those on the Ister have falsely taken this name.....* The Turks then conquered the nation *Ogor*, a very numerous race, well skilled in arms. It dwelt in the east, on the river Til (*i.e.*, the Itil or Volga), which the Turks call black. Its most ancient princes were called *Var and Chunni*. A portion of these fled from the main stock into Europe, and adopted the name and distinction of the Avares. The Sarselt Unnuguri and Sabiri, on the arrival of the fugitives, were seized with great fear, as they suspected them to be Avares. *The Var and Chunni, seeing this, gave themselves the name of Abares*, for the Abares among the nations of Asia are held in highest esteem. Of these pseud-Abares some were Var and some Chunni."

Menander Protector reports that the ambassadors of Dizabulus, the Turkish khan, in answer to certain questions, said that a portion of the Avares were still subject to him, and that the number of those who had fled westward was about twenty thousand. Zemarchus, the Byzantine ambassador, on his return from Asia, the same writer tells us, crossed first the Hich, then the Daich (the Jaik, or Ural), and then, after passing some marshes, came to Attila (the Âtel or Itil, the Volga); thence to the *Ougouri*, who warned the Romans of an ambush the Persians had prepared for them. The leader of the *Ougouroi* was subject to Dizabulus. Dizabulus was succeeded by Turxanth, who jeered the Roman ambassadors for their hollow friendship, inasmuch as he said, "Ye have made treaties with our slaves the Varchonitæ (by whom, as the original in Menander says, he meant the Avares), who were our subjects."

These extracts have been bones of contention among ethnologists, and quite a load of lore has been accumulated about them. Several facts seem to me to stand out clearly. First, the *Ougouri* of Menander and the *Ogors* of Theophylactus are the same folk, a great and warlike people living on the Volga. These, again, can be no others than the Jougrians, so celebrated in the middle ages; the Youras of the Arabs; and Yourahs and Yugri of the Russians. Yugri is probably derived from Yukh, Ostiak, wood (Lehrberg). Their present country is filled with thick woods; it lies between the river Ob and

the Ural mountains, as far as the Nadym and the Agasin, and between 56 deg. and 67 deg. North latitude. We have shown in a previous paper that they were the same as the Ougres, or Hungarians. If Avar and Ogor are convertible terms, then assuredly the Avares were typical Ugrians, and own brothers to the Voguls and the Mordvins, as the Hungarians were. But this is improbable.

In the case of the Avares we may distinguish two distinct peoples. Theophylactus tells us, of the Ogor some were Var and some Chunni; again, the ancient princes of the Ogor were called Var and Chunni; lastly, Paulus Diaconus tells us the Avares were formerly called Huns, but from the names of their princes they took that of Avares. These extracts seem to show that it was the princely caste among the Ogors—the dominant race, in fact—which alone was entitled to the name of Avares. This is confirmed in other ways. The Turkish khan does not complain of the flight of the Ogors, but of the Varchonitæ. The Ogors are found by Zemarchus, under their own chief, on the Volga; while the Varchonites, of whom Turxanth complains, had fled towards the Danube: shewing clearly there was a distinction between them. The number of fugitives was placed by the Turks at 20,000, a small fraction only, assuredly, of those Avares who were the terror of Western Europe for so long. This fact and the rest are explainable only on the hypothesis that the Var and Chunni—*i.e.*, the Avares—were only the nucleus—"the head of the spear"—of the Avarian armies, the rest being formed of precisely the same materials as the armies of the later Hungarians; namely, of Ougres. That the Avares proper were the dominant nation of Central Asia before the Turks is stated by the ambassadors of Dizabulus. That as such they dominated over the Ogors is most probable (thus the chiefs of the latter acquired the names of Var and Chunni); and that, when beaten by the Turks, a portion of the Avares should fly to the Ogors, and with the latter invade the west, is equally probable; and this I take to be the real story. And, if it be so, we ought to find corroborating testimony in the pages of the Chinese writers, and to them we must now turn.

Before doing so, I will dispose of two or three other questions. Dr. Latham throws out a suggestion that "Abaris the Scythian", mentioned by Herodotus, may have given the name to the Avares—a far-fetched notion, showing only too clearly how apt a mere name is to run away with our ethnological reasoning; that a Scyth of the sixth century B.C., should have given a name to those who, in the sixth century A.D., Priscus tells us, "were formerly called Huns, now Avares", argues a more tenacious memory in a race for their primitive name than is consistent with probability.

The curious story of Theophylactus about the real Avares and the pseud-Avares has received many explanations. I think that of the elder St. Martin, the historian of the Armenians, is the most probable. If the Avares were the dominating race of Central Asia, they must have been too well known to the inhabitants of the northern shores of the Caspian for them to mistake an entirely different

people for them. The explanation of the story, no doubt, is, that they mistook the broken fragment flying before the Turks for the main army of the old invincible race.

Let us now leave the Byzantine and examine the Chinese authorities. Here I shall depend entirely on the authority of De Guignes, who wrote a most exhaustive article on the Avares, in the twenty-eighth volume of the "Transactions" of the French Academy, some years after the completion of his great work on the Huns.

Before the supremacy of the Turks, the western writers tell us, the Avares were the dominant race in Central Asia. The same position is filled in the Chinese accounts by the Geougen, or Jouan Jouan. Theophylactus tells us the Turkish khan killed three thousand Ogors, with their khan. Exactly the same story is told of the destruction of the Geougen by the Chinese writers. The last khan of the Ogors is called Colch by Theophylactus. The Chinese, who disfigure all foreign names, call the last khan of the Geougen Gau-lo-chin. In 551 the Geougen were defeated by the Turks; and in 555 the Turkish khan put to death three thousand of them with their leader. The fugitive Avares first appeared on the frontiers of the Roman empire in the thirty-first year of Justinian—i.e., in 557—coming from the very country of the Geougen; thus the time of the arrival of the Avares exactly agrees with the time of the expulsion of the Geougen.

These facts make it most probable that the race of the Avares, whose great fame had reached Europe, was neither more nor less than the Geougen of the Chinese.

The Geougen are placed by Chinese writers about the river Tula, and we are told their country extended as far as the Baschkirs. Ma-touan-li, the great Chinese historian, places them, during the dynasties of the Huns, to the north of the Yue-tchi. These notices only vaguely define the area of the Geougen. We shall not be far wrong, however, if we assign to them the country now occupied by the Great and Middle Hordes of the Khirgises and the province of Tobolsk, the area, in fact, formerly known to the Arabs as Ibir Sebir. We shall have more to say about this when we come to the Bulgarians.

The Chinese do not assist us at all in defining the race affinities of the Geougen. Some make them Tungus, others Mongols. (Remusat, "Langues Tartares", p. 326.). Ma-touan-lin makes them descend from the Hiong-nu—that is, makes them Turks. These contradictory accounts probably only prove that the Chinese had some difficulty in assigning them to any of the well-known races of Northern Asia.

I believe I have discovered a clue which explains the difficulty, and also solves it. Vivien St. Martin and others have remarked that the name read Geougen by De Guignes is really formed by a repetition of the same character, and ought to be read Jouan Jouan, or perhaps Jén Jén. Now Strahlenberg relates that a surname in use among the Azincian Tartars was Gugui (p. 66). This seems more than a mere resemblance of name. Who were the Azincian Tartars of Strahlenberg? The question lands us in the midst of a very

quagmire of difficulties. Until the present century it was the custom to divide all the tribes living north of the Khirgises, between the Baschkirs on the one hand and the Barga Burats on the other, into either Turks or Ostiaks. Turks, such as the Barabinski, the Tartars of Tura, of the Tchoulim, etc., were very properly considered as intruders, most of them since the foundation of the Siberian Khanate of Tura by the Mongols; the rest were the *débris* of the Cancalis and the Thoukiou, who had been pushed hither by other invaders. I believe this view to be incontrovertible, and have already treated of it at length.

Having displaced the Turks, we have remaining the Ostiaks. Klaproth was the first to point out that under the name Ostiak two different races are included. First, the Ostiaks proper (the word means those living on the Ob), of the same race as the Voguls and the Perimians, and also of the original Baschkirs—typical Ugrians, clustering about the focus of the Ugrian races, namely, the Ural Mountains. These Ostiaks are an encroaching race. They are found far away from their own camping grounds, even among the tribes on the Jenissei. These wanderers have traditions of their emigration. Strahlenberg thus reports: "When I was among the Ostiaks on the Obi, I asked them, since they were known as Ostiaks to the Russians only, whence they had their vernacular name Chondichue; they answered they came formerly from the river Chonda or Conda, which flows into the Obi..... Those Ostiaks that live farther towards the east, near the city of Tomskoi, told me they came from Sauomis Sembla, which is either Finland or Lapland." Sauomis Sembla, as Latham has pointed out, is simply land of marshes, and refers to the country north and north-west of their present residence.

In the interesting essay on the Ostiaks, contained in the Memoirs on Russia published anonymously in 1725, it is said: "It is easy to prove, by the ancient historians, that they (the Ostiaks) lived formerly in the province of Permia Wilski, near Solkamskoy; but the old Bishop Stephen having tried to convert them, some became Christians; others, on the contrary, abandoned the country of their ancestors, and took refuge in an inhospitable climate. This is confirmed by the similarity of their language to that of the Permeki. They have disused the name of their ancestors, and call themselves Chontiseki, and call their present country Gaudimiek. As these words have no meaning in their language, it would appear that the fear of being discovered made them disown the name Permskoi or Perms, and obliged them to change their name." Fischer, the historian of Siberia, also says the Ostiaks are emigrants, and assigns the same cause as the author of the Mémoires for their emigration.

Ermann (vol. ii, p. 140) gives an anecdote related to M. Stephanoi by one of the chiefs of the Ostyaks of Yeniseisk. "Once, as our horde journeyed from the setting towards the rising sun, it was found, upon their coming to the river Tas, that but four of each sex remained alive. These, too, must have died of hunger, but that one

of them was an inspired soothsayer. On a sudden wings appeared upon his shoulders ; he first raised himself into the air, then darted down into the tas, and emerged with his body hung round with fish ; henceforward his companions became fishermen."

These authorities suffice to show that the Ostiaks proper are an encroaching race ; that they have been drifting towards the east and south in quite recent times ; and that they are no long possessors of a portion of the area they now inhabit.

I said that under the name of Ostiak two very different races have been confounded. The above remarks apply to the Ostiaks proper only. Klaproth, in his elaborate review of the Siberian races, separated from them certain tribes on the Upper Yenisei, which had been confounded with them by many authors, and gave them the name Yeniseians, by which they are still known to ethnologists. They consist now of very small and disintegrated tribes rapidly being extinguished, and having few points of resemblance in their language and customs to either Turks or Ostiaks. *Sui generis*, and isolated, they have been a puzzle to ethnologists. Long before the days of Klaproth, the much neglected Strahlenberg had distinguished them, and given a vocabulary of one of their dialects, which he pointed out was different to that of any of the surrounding tribes. These surrounding tribes—Turks, Samoyedes, and Ostiaks—have all been encroaching within quite recent times. So far as we have any evidence, the Yeniseians, on the other hand, occupy their original seats, and have been rapidly diminishing in numbers and importance. Small-pox, and the struggle for existence against Russian tax-collectors and Turkish robbers, have reduced their numbers very fast. It is of them that Strahlenberg tells the pathetic story which has been frequently repeated. He says: "The Arintzian Tartars, who live under the dominion of the Russians on the river Jenesei, near the city of Crasnojarsk, told me that when the Russians had made themselves masters of West Siberia, and these Tartars saw that they brought one nation after the other under their yoke, and of consequence reasonably concluded that it would soon come to their turn likewise, they sent ambassadors to the Russians, who took with them an arrow, a black fox, and a piece of red earth, by which they meant, according to their custom, to offer the Russians the alternative of peace or war. But the latter pursuing their design, and falling unexpectedly on these people, their horde was so entirely routed and cut off, that of seven thousand men of which they then consisted, only about two hundred are now remaining. However they have yet their separate tongue." The allegory of the fox, arrow, and red earth, has been compared with reason with the similar allegory of a bird, a frog, and a mouse, sent by the Scythians to Cyrus. In another paragraph, Strahlenberg says: "I asked them (the Arrintzi) how their horde came to be so small since they had their own separate language. They answered they were called Arrintzi or Arrinei, from the word Arr or Ara, which signifies a hornet. Now, as they were in ancient times a great and mighty people, who destroyed great numbers of other nations, they

were, therefore, compared to hornets. At a certain time a vast swarm of serpents came into their country, who had heads like men, and shone like the sun itself. With these they indeed waged war, but were at length overcome by them, routed, and great numbers of them killed by those creatures; upon which those who remained were obliged to leave the country they before lived in." Whatever the value of this etymology and fable about the serpents, it no doubt contains a tradition of the ancient greatness, and gives a cause for the present decrepitude, of the race. The story has been compared with that told by Herodotus of the Neuri.

Much remains to be said about their customs, and more especially their language, on which Castren has written a most valuable work. These I shall refer to more at length when we come to consider the Bulgarians and Huns, when we shall have to revert to this area. Here it will suffice to say, that the broken fragments of this almost extinct race now "exist (I am here using Latham's words) on each side of the Yenisey from Abakansk to the parts about Mangaseia, Abakansk and Mangaseia being Samoyed localities. The Uda, the Sym, and other Yeniseian feeders, are Yeniseian occupancies. The Ket, a feeder of the Obi, is the same. The fifty-sixth parallel cuts their area, Krasnoyarsk, Jnbazk, and Pumpokolsk, being the towns of their district, but by no means the towns of the Yeniseians. On the south they are bounded by the Soiot, and certain Turk tribes approaching them, and of mixed blood; on the north by the Khasovo; on the west by the Ostiaks; and on the east by the Tungusians of the Tunguska river."

The position I have tried to support, and I believe it is incontrovertible, is, that over all this area, and even over a much wider area, the Yeniseians form the original population, and have been broken to shreds by their various neighbours. Now this very area is filled with mounds and ruins of ancient structures—more so, perhaps, than any part of Asia—ruins that attest its former culture, and prove beyond all question that it was once the stage of a civilisation which has been long extinct. I will quote the descriptions of several travellers.

Strahlenberg describes the idols and other remains taken from the Ostiaks on the rivers Irtysch and Obi, when they were baptised, among which were some above a foot high, of metal very artificially cast. The Ostiaks say they inherited them from the ancient Asiatic Scythians, or Tzudi, who inhabited those countries before they came thither. There seems to be some probability in this, as they are too stupid and simple to have made such work. Their other idols are only roughly hewn pieces of wood or stone hung over with rags." Again, "Vast numbers of graves are found in Siberia and the deserts bordering it on the south. In these tombs are found all sorts of vessels, urns, wearing apparel, ornaments and trinkets, cimatars, daggers, horse-trappings, knives, all sorts of little idols, medals of gold and silver, chessmen, and golden plates, not unlike the *bractei aurei* of some others of the ancients. Likewise cloths, folded up, of the

same sort as those the corpses were dressed in. The graves of the poorer sort have likewise such things in them of copper and brass, arrows of copper and iron, stirrups, mirrors with characters upon them, earthen urns, etc." "About twenty or thirty years ago, before the Czars of Russia were acquainted with this matter, the governours of the cities of Tara, Tomskoi, Crasnoyar, Batsaniski, Isetskoe, and others, used to give leave to the inhabitants to go in voluntary caravans to these tombs in order to ransack them, on condition that of whatever they should find of gold, silver, copper, and jewels, and other things of value, the governor should have an allowance, generally of the tenths. These caravans, whenever they found anything of value, used, for the easier dividing of their booty, to knock to pieces these choice antiquities, and give to each person his share by weight." "The arms, swords, arrows, daggers, etc., which the Russians dug out of these places, were not forged, but cast of copper, especially the swords, which were shaped much like our modern bayonets and hangers." To prove the antiquity of these remains, Strahlenberg makes an apt quotation from the war between Cyrus and the Scythians. When asked by him why they did not keep their ground, they answered that there they lost nothing by giving way, but if he should come near the sepulchres of their fathers he might then chance to see whether they could fight or no.

It is unnecessary to quote from Ermann, from Pallas, and from the rest of the Siberian travellers, who enlarge on the vast quantities of large graves and other *débris* of an extinct civilisation, which crowd the country of the Jenissei and its feeders, and which form a perennial El Dorado to the present inhabitants, robbers who organise digging and plundering expeditions to these cemeteries. Our purpose is fulfilled when we have proved the existence of the remains, and identified the race to whom they belong with apparently the only possible descendants, the broken and fast disappearing Yenisseians.

De Guignes, as is well known, identified the Huns with the Hiong-Nu of the Chinese writers. He was very probably misled by the resemblance of the name. It is strange that he should not have been impressed with the much greater resemblance there is between Hun and Jouan, or Jén. We have already quoted several authorities, who tell us that the Avars were originally called Huns; we have shown reasons for identifying them with the Jouan Jouan. So that this identity of name is a fresh support to our position; but, besides this, it throws light on another question. The Jouan Jouan first appear in Chinese history in the beginning of the third century A.D. Some time after, they are found on the Jaxartes, and invading Transoxiana, where they intermarried with the Yethas. They compelled these latter to emigrate to the south of the Oxus, and during the fourth and fifth centuries extended their power as far as India. Towards the end of the fifth century, and after it had been conquered by the Jouan Jouan, Khoten is called Houn-na by the Chinese historians. The whole frontier of Persia is then described by western writers as infested by enemies, to whom a new name is given; namely, the White Huns.

Cosmus Indio Pleustes, who was in India in 525, gives the name of Hunnia to the vast territory separating India from China. (Renaud, "Relations, etc., de l'Empire Romain avec l'Asie orientale", p. 296.) Houna is the name of a tribe occurring in Indian inscriptions. *Hara-hodna* is the name of a barbarous people in the north-west of India, mentioned in the Mahabharata. One of the dynasties mentioned in the celebrated history of Kashmir is that of the Hunk. *Khoundoca* is one of the states near Badakschan. All these facts prove what an important race the Huns must have been in the east of Persia in the fourth and fifth centuries. They also compel us to identify the Huns with the Chinese Jouan Jouan.

Thus, while Europe and the west were being flooded by one wave of Huns, Eastern Persia and the Indian border were being flooded by another. No doubt the White Huns of Priscus and others were for the most part Epthalitæ or Yethas, and were called Huns, as the Magyars were called Turks by Constantine Porphyrogenitus; viz., because a Hunnic caste had overrun and conquered the whole country. Most of the above facts I have taken from Vivien St. Martin's admirable essay on the Epthalitæ, or White Huns of Priscus. It is a matter of great surprise to me that the French geographer should never identify the Huns with the Jouan Jouan.

The Huns of the Byzantine authors generically included many distinct tribes which invaded Europe in successive waves. The name Avar is confined by them to the last of these waves; the name Jouan Jouan is apparently used by the Chinese in the same wide and generic sense that we use the name Hun.

Priscus, in describing the successive tribes who pushed westward, says the Avares pushed on the Saroguri, and the Saroguri the Sabiri, and other Hunnic tribes. Now Saragouri is word for word White Oghre, or White Ogor, the particle "sar" in the Ugrian tongues meaning white. White Ogor, again, is used interchangeably with White Hun. In a previous paper of this series, I have proved that the Khazars, or Akatziri, were the same race as the Epthalitæ of the Persian frontier. We have shown that, about the fourth century, the Epthalitæ began to be called White Huns. We are correspondingly told that the Saroguri, being driven from their country, fell upon the Acatzirian Huns, and thoroughly overcame them. This seems to me to be conclusive that the Saragouri were the same folk as the White Huns. I believe they were the Ogors, whom Zemarchus found to be predominant on the Volga, when he returned from his embassy to Dizabulus the Turkish Khan; and who were described by Theophylactus as dominated over by a princely caste of the Var and Chunni, that is, of the Avares.

Having traced the Avares to their cradleland, we must now give a rapid sketch of their history (chiefly from De Guignes). In the third century, A.D., Northern China was subject to a race of Tatars, known in history as the To-pa or Goei (their ethnology I hope to work out on a future occasion). About the beginning of the fourth century, a fugitive from these Tartars collected a number of hordes in the desert

to whom he gave the name Geougen. About 391, their country was entirely overrun by, and made subject to, the Goei emperor. Some fugitives, under their leader Sou-lun, escaped towards the west. Here he collected a considerable nation about him, and subdued many neighbouring princes, and soon became the most powerful chieftain in Tartary. He possessed himself of the country of the Kaotche Turks about the Onon and the Selinga, where he settled, and soon became master of all the country from Corea to the river Ily. He subjected the country of Yu-pan or Yue-po (that is, the country of the Baschkirs—De Guignes), and then took the title of khacan or khan, abolishing that of tanjou, until then held by the supreme ruler of Tartary. He now made laws for his people, and introduced discipline among their troops, which he divided into different corps. His people were till his day a barbarous race, ignorant of letters and accounts; he made them imitate Chinese manners, except in regard to their writing, which consisted merely of notches cut on wood—a species of writing common to many nations of Central Asia, and, in fact, identical with the runes of the Norsemen. He fixed his capital at Kam-tcheou, at the western extremity of Chensi, a famous town and entrepôt of trade in later history. Having been beaten in battle by the Goei Tartars, Tou-lun at length died in A.D. 410. His death was followed by considerable confusion, relieved only by constant inroads upon the territory of the Goei, in which the invaders generally were badly beaten. The emperor, weary of these incursions, set out with an army of 100,000 men, and overran the whole country of the Geougen, taking many prisoners and much booty. The Kaotche Turks, at the same time taking advantage of this inroad, killed many of their old masters, and ravaged their lands. The khan died of chagrin; his son made peace with the emperor, and married a princess of the imperial house.

About 448, the inhabitants of Yue-pan—(De Guignes calls them Baschkirs; if so, they must have been the Ogors of western writers)—sent an embassy to the Goei emperor, suggesting a treaty by which the Geougen should be attacked in the east by the Chinese and in the west by themselves, and ground to pieces between the two millstones. The Goei continued to send expeditions into Tatar, and harassed severely the Geougen; the latter did the same in reply, and overran all Little Bucharia, *i. e.*, Kaschgar, Khoten, etc. The end of the fifth century saw them struggling with their various Turkish subjects, the Cancalis or Kaotche, the Ouigours, etc. It is tedious to relate the various revolutions that took place, and one can only refer to the most striking. About 516, the khan of the Geougen thoroughly defeated the Kaotche Turks, killed their king, and made a cup out of his skull. Many of the Kaotche were driven among the Getes; that is, the White Huns of Transoxiana. About 523, there occurred a grievous famine that desolated the country of the Geougen. Meanwhile the Goei became divided into two sections, the eastern and western; the Geougen allied themselves alternately with one and the other. It was about this time we first hear of

the Turks. The Geougen were tributaries of the Goei, and seem to have been related to them very much as the Kalmucks of Soongaria were to the first Mandchu emperors. In Tartary they were supreme; all the Turkish and nomade hordes of the Altai and the Steppes of the Aral were subject to them, as were also the White Huns, whom Vivien St. Martin has identified most conclusively with the Yue-tche of the Chinese writers. With the White Huns the Geougen intermarried, and no doubt received from them much of the culture they possessed, probably also some of their religious notions. Among the races tributary to the Geougen was a tribe living in the Little Altai mountains, called Thu-kiu by the Chinese and Turks by the western writers. So far as we can judge, they first gave a name to the race which is so widely known under the name of Turks. We are told this tribe was subject to the Geougen, and was employed by them in manufacturing iron, the Thu-kiu being most skilful iron forgers. About 551, the Tie-lé, another Turkish tribe, rebelled from the Geougen; the rebellion was quelled by the Thu-kiu, whose khan, in return, asked for a daughter of the khan of the Geougen in marriage. This request was indignantly refused. Upon which Tou-muen, the khan of the Thu-kiue, took up arms and defeated the Geougen. In 555, Mo-kan, who had succeeded Tou-muen, entirely defeated the Geougen, whose khan, with three thousand of his subjects, took refuge with the Chinese. These fugitives were demanded from the Chinese emperor by Mokan, who immediately put them to the sword; and, according to the Chinese accounts, the Turkish power then supplanted that of the Geougen. At this very date, and in this manner, we are told by western writers, the Turks supplanted the Avars. The great bulk of the nation, I have no doubt, retired to the rich country about the head waters of the Irtysh, etc., where an old civilisation had long existed, and where we have placed the cradle of the race. These were the Avars, whom the Turkish ambassadors to the Romans described as still subject to them. Here they continued, and no doubt formed the nucleus of the later state of the Kie-kia-se, whom we have already described as the destroyers of the power of the Hœitche. These Kie-kia-se were very different to the later Kirguises, and did not become Turcified, if I may use the word, till after the eighth century. Before they became Turks, I believe them to have been of the same race as the ancient Avars and the modern Arintzian Tatars.

Before the arrival of the Turks, the Avars were predominant in Central Asia. Their influence spread into the country watered by the Volga and the Don. On the decay of the Huns proper, we are told that they forced the Sabiri, a Hunnic race, upon the Saroguri, Urogi, and other tribes, who thereupon attacked the Acatziri. This was before A.D. 465 (see Priscus de Legationibus). On the attack of the Turks, a portion of the Avars sought refuge in the country of the Tangastenses and the Mucritæ, called Tangast by Theophylactus (the Tangut of the Chinese writers)—a realm, he says, agitated by no intestine struggles, where they live frugal lives and are ruled by just

laws. Its inhabitants are divided into those who wear black and those who wear red vestments. These are the two celebrated sections of the Thibetan Buddhists.

Another portion of the Avares, as we gather from the relation of the Turkish ambassadors to the Romans, remained behind in their own country, and became subject to the Turks.

Besides those who remained behind, and those who took refuge in Thibet, there was another portion of the Avares, who, following the example of other defeated nomades, took the way across the Steppes and towards the Volga. This division, as the Turks told the Romans, consisted of twenty thousand men. They adopted the credit due to their former power, and, as we have already shown, were probably for this reason called pseud-Avares by Theophylactus. Menander tells us that, having wandered about indefinitely, they at length came to the Alans, and requested Sarosius, their chief, to introduce them to the Romans. Justin then commanded the Roman troops in Lazica: he sent on the request to the Emperor Justinian, who ordered them to send ambassadors. With these ambassadors went one Candich, who insolently boasted of the invincibility of the Avares, and warned the Romans that it would be the best policy to pacify them by the gift of rich presents and a fertile region to dwell in. The Emperor, grown old and decrepit, sent the embassy splendid chains of gold and silk garments. He also sent Valentinus as his legate to counsel them to make war on the enemies of the empire. Upon this the Avares fell on the "Utiguri, the Sali, a Hunnic race, and the Sabiri",—these are the names given by Menander. These are, no doubt, the same tribes whom Theophylactus calls "Sarselt, Unuguri, and Sabiri": we shall have much to say of them when we come to the Bulgarians. North of the Caucasus, the Avares seem to have created a considerable power, and to have subdued the Ogors, etc. But the Turks were coming behind, and they must haste on. Like all the nomade masters of this area, a portion of them took refuge in the Caucasus. A chief division of the Lesgha, numbering from forty thousand to fifty thousand families, is called Avar. They speak a peculiar dialect, different to the other Lesghian speech. Among them, according to Klaproth ("*Tableaux Historiques de l'Asie*"), are found many names given by the ancients to Huns and Avares. Their chief is called Avar Khan. The Geoigiens call him Khoundsagh batouni.

The main body of the Avares pressed the Romans to assign them seats on the Danube. Justinian at length promised them the country formerly held by the Heruli in the Second Pannonia; but being advised of their want of faith, detained their embassy, and otherwise irritated them. The Turks pressed on, and we are told (Theophylactus) that the Tarinach, Cotzageri, and Zabender tribes also, sprung from the Var and Chunni—that is, Hunnic tribes—were driven forward by them, and took refuge with the khan of the Avares. The latter, with a great body of nomades, now crossed the Don, and at length entered Pannonia.

The chiefs of the Antæ now sent an embassy to the Avares, with whom was Mezamir, son of Idarisius, to pray them to release some of their captives. The arrogance of Mezamir roused the anger of the Avares, who ravaged the country of the Antæ in all directions, killed their king, and compelled them to be their subjects. This conquest has been too lightly treated by historians. It forms a most important epoch in the history of the Slavic nations. Great portions of country along the Dnieper, and especially along the Baltic, west of the Vistula, had been left comparatively vacant by the emigration of the Goths, Vandals, etc., etc. Along this open marching route the Slaves pressed westward, under the leadership of the Avares.

It was at this period apparently they took possession of Bohemia, the former home of the Marcomanni. The Bohemians call themselves Czech. It is a bold conjecture; but I believe it to be justified by the facts that this name distinguished the caste of Avares who led them. I can find no etymology for the word so good as the one (which I believe to be new) identifying them with the Seklers of Hungarian history, so celebrated in the neighbouring Moravia, and who claimed not to be Hungarians, but descendants of Attila's Huns, own brothers of the Avares.

The march of the Avares was rapid: in 562 they entered Germany as far as Thuringia, and ravaged the country right of the Rhine. In 572 they defeated Sigebert, the Frankish king. Gregory of Tours accounts for their victory by their use of magic.

About this time, Baian Khan of the Avares, in concert with the Lombards, destroyed the Gepidæ, and took possession of Pannonia; the larger portion of his armies no doubt consisted of Slaves (Serbs, Chrovats, etc., etc.), and the remnants of the Huns (Cotrigurs). In 574, after defeating the Romans, he made peace with them. This peace was renewed in 578 by the Emperor Tiberius—a treaty which gave great umbrage to the Turks, who upbraided his ambassadors for making treaties with their slaves. This curious chapter in the history of public morals is told at some length by Menander Protector. The Romans fell between two stools; for, while the treacherous Avares proceeded to attack Sirmium, the exasperated Turks laid siege to the city of Chersonese.

Tiberius was weak enough to surrender Sirmium to the Avares, and to pay them a considerable largess. Maurice, who succeeded him, increased the tribute, and also complied with the insolent demand of the Khan to send any rare animal of the Emperor's collection he might fancy. We are told that the Khan chose an elephant. But nothing would satisfy their cupidity; they overran Thrace in all directions, and took many of its cities. These wars were conducted with great barbarity; everywhere ruins and devastation marked the course of the forays of the Avares. In 599 they entered Italy, where their cruelties remind us of the gloomy days of Zenghiz. In 626, they camped under the walls of Constantinople. Thus runs the history of those dark days. Ravage, plunder, and destruction are the words most frequently used by the chroniclers; and thus they continued till

the days of Charlemagne. With their head-quarters in Pannonia, commanding the armies of the Slaves as well as of the Nomades, they effectually destroyed the civilisation of Europe from the Rhine to the Volga, and from the Baltic to the Bosphorus.

Pannonia was their focus and chief camping ground, where they stored their plunder. About 630 A.D. (Bohucz, "L'Origine des Sarmates," 504), they established the so-called Rings, or encampments, of which they had nine, the largest being seven German miles in diameter. These Rings, which included towns, pastures, and woods within their circuit, were surrounded by a rampart formed of piles and stakes, twenty feet high, filled up with stones, &c. Round this was a species of glacis, and then a ditch.

It was Charlemagne who put an end to the domination of the Avars. He took their Rings by storm in 794 and 796; and we are told that the vast booty he captured lowered the value of gold in Europe, like the discovery of California did in our own day. But the Avars had for some time been demoralised by the possession of great wealth and the temptations of luxury; and the common folk among them received Charlemagne almost as a deliverer.

Their power was broken, but they were not exterminated; the remainder coalesced with the Ughry, whose invasion took place fifty years later, and whose relatives they were, and together they formed the nation of the Hungarians.

We have thus traced out the connections and the primitive history of the Avars. We have only cleared away a portion of the difficulty that surrounds them. In the next paper, which will treat of the Huns and Bulgarians, we shall criticise more in detail some of the unsettled points in their ethnology, and shall hope to throw some light on the darker corners of the history of the fifth and sixth centuries.

HENRY H. HOWORTH.

## ON THE KIMMERIAN AND ATLANTIAN RACES.

I MUST except to many of the Keltic etymologies suggested by Mr. Hector Maclean. To begin with "Scythian": a better derivation than that of Mr. Maclean is given by Béron, who renders Σκυθης, "homme vêtu en peaux, de σκυτος, peau". Kimmerii is rendered by Mr. Maclean "fit companions or peers" (*kim*, together; *er*, man). A more reasonable derivation is from *cymmer* (*cym*, with; *môr*, the sea), a junction, confluence). The Kimmerii were perhaps originally named from dwelling at the confluence of one river with another river, or of a river with the sea. The derivation of Sabinus from *sa*, good, *bin*, white, is incorrect—the name not being of Keltic origin at all. The same remark applies to such names as Araxes, Artaxata, Armenia, Caspian, Oxus. It would be useless to attempt the etymology of such names without first arriving at an earlier orthography. At all events, the Oxus, Artaxata, Araxes are not compounded of

*ax*, *ox* = water, found in Keltic river names. A better derivation of *Oxus* would be from the Tartar *ak-su*, "the white water". Mr. Maclean is right in stating that *Keltoi* is contracted from *Galatæ*; but the name *Keltoi*, or rather *Κελται*, would seem to have arisen thus. The Germans had a word *al* = "other", "foreigner", which they borrowed from *ἄλλος* (*alius*). Hence the name of the Alemanni, "other men", "men from another country". This *al*, with a prefixed gamma, became *gal*, whence *Galli*, *Walli* (the origin of Welsh). The Greeks made use of the term *Γαλαται* for Gauls, Celts, and the people of Galatia, who were composed of *Galli* and *Greeks*. In time *Γαλαται* became corrupted to *Κελται*, whence *Kelt*, *Celt*. Perhaps *Kelt* is a better orthography than *Celt*, because of the word *celt*, used for a stone chisel, from Latin *cellis*.

The proper derivation of *Dariorigum* is not from *doire righ*, "grove or oakwood of kings or leaders", but from *Armoric darémorig*, *vorieg*, "near the little sea." Neither can I agree that the termination in *Britanni* is from "*anni* or *fheinn*, same as *Veneti*"; nor that the name *Brigantes* is from *brig*, valour, and *antes*; the termination being Latin, not Keltic. Baxter, who is a very good authority in Keltic philology, renders *Nouantæ* or *Noüantæ*, "*advenæ, sive novi inquilini*" (from *nou* and *hant*); and he derives *Trinouantes* from *tri nou ante*, which he renders "*oppidi novi incolæ*". He says *hant, hent, or hynt* (in *Nouantæ*), is "*iter consuetum et locum ubi adsuescimus*". The town of the *Simeni* (Ptol., *Σιμενοι*) was *Sitomagus* (named from the river *Sit* or *Thet*), the same with *Thetford* and *Venta*, i. e., *Venta Icenorum*. The name *Simeni* seems to be corrupted from *Cenomagni* or *Icenomagni*. In the *Pe'llt. Tab.*, the name of the town is *Sinomacus*.

The name *Gangani* is perhaps the same as *Ceangi* or *Cangi*, from *cang*, *ramus*. Baxter compares it with *Ὀζος Ἀρηος*, an epithet of famous warriors among the Greeks.

We are told by Mr. Maclean that the *Belgæ* were the same as the *Veneti*; and he derives the name from two Keltic vocables, which is not reasonable. The *Belgæ* were only partly Keltic. According to *Cæsar*, they were of German origin, though somewhat mixed up with the Keltic inhabitants of Gaul. *Strabo* and *Livy* call them *Völckæ*, *Cæsar* *Volgæ*, *Ausonius* *Bolgæ*, *Cicero* *Belgæ*, *Ptolemy* *Βελγαι*, and in some Greek writers the name is written *Ουολκαι*. According to *Thierry*, the *Belgæ* dwelt for a long time on the *Euxine*, where the *Greeks* reduced them to servitude. The traditions of *Ireland* speak of an emigration into that isle, of *Fir-Bolg* (who were doubtless the same people) from the embouchure of the *Rhine* in Gaul.\* The Gaelic word *beatha*, which Mr. Maclean considers to be the root of *bel* in *Belgæ*, is from *βιοτη* (L., *vita*) = *βιωτος*, *βιος*; from *βιωω*, to live.

\* *Armstrong* renders the name *Belgæ*, "the quiver-bearing people, so named from their being always armed with bows and arrows (*bolg saighead*, a quiver)". I quere the A.-S. *folc*, D. and G. *volk*, Sw. *folck*, Dan. and Eng. *folk*.

Again, the Welsh *mynydd* is not the root of *mons*, but is itself derived from *mons*, *mont-is*. There is no pretence for deriving Latin and Greek from the Keltic. The name Liguria is certainly not from the Welsh *llwyg*, a turn round; *liug*, to bind. The Welsh *lli*, a stream, has, by extension and corruption, among very many other forms, assumed those of *lag*, *leg*, *lech*, *leck*, *lig* (with a suffix, *ligr*), *lug*. Hence, Lech, a river of S. Germany; Leck, a river of the Netherlands; Leck, Leach, Lugg, rivers of England. Hence also Lugdunum, ancient name both of Leyden and Lyons; Ligr, now the Loire (and, as a diminutive, Ligerula, Loiret); and Liguria.

The name *Batavia*, or rather *Betuwe*, is of Teutonic or Gothic origin, viz., from *bet auwe*, "good land or country;" in opposition to *Vetuwe*, "bad land" (*vale*, falling, desertion, &c.). The probable derivation of Cantabri, or rather of Cantabria, is from *cant*, a corner, head-land. The name of the Coritani is found written in Ptolemy Κοριτανοι; and Baxter suggests a better derivation than that of Mr. Maclean. The *tan* in Aquitani, Vescitani, Carpetani, Mauretania is said to mean "land" in Gaelic, and "under" in Welsh. Would Mr. Maclean also include under this head the African names Usalitanum, Abziritānum, Ucitānus; the Etrurian Hortanum; the Bruttian Aprustāni and Argentanum; and the Hispanian Nuditānum and Turdetāni, found also Turduli? This termination *tan* has no etymological connection with the *stan* in Oriental names, as in Afghanistan, Daghistān, Laristan. This *stan* is derived from Sanskrit *sthāna*, site, place, station. Neither can I admit that the last syllable in the names Aulerci, Lemovices, Mediomatrici, is from Keltic *ci*, *ces*, from *cia*, man. It is simply a Latin termination, which is also found in Ambracia, Boruscia, Cappadocia, Cilicia, Dacia, Græcia, Lycia, Thuscia, Thracia. We are told that the Berber word *thala*, fountain, and the Gaelic *tuil*, a flood, connect the Atlanteans of Scotland and Ireland with those of Fez and Algiers. Why did not Mr. Maclean also connect this Berber word with the Darien *doulah*? Another Berber word for a fountain is *an' serah*. Is this also allied to the Keltic? There is, indeed, no pretence for saying that any of the Keltic languages are etymologically connected with the Berber, or with any of the neighbouring languages. It would be quite as reasonable to trace the English language to the Chinese, or the Cherokee.

Gray's Inn.

R. S. CHARNOCK.



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#### NOTE ON THE HAMAH STONES.

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WITH deference to the opinions which Mr. Hyde Clarke has so clearly expressed in this Journal, and in Captain Burton's work on Unexplored Syria (vol. i, pp. 349-360), I am led to offer an interpret-

ation, which, though not a novel one, will, I believe, be borne out by some of the facts. A large amount of the emblems appear to be of a decidedly phallic nature. I shall verify this by reference to the inscriptions themselves.

No. 1 inscription, second line—We here see the sacellum,  the linga,  and a winged figure representing the yoni. Third line—The linga occurs twice, the sacellum once.

No. 2, first line—The linga is here repeated, and there are two characters which may be the yoni. Second line—Here there are four definite sacelli, four or five doubtful ones, and one linga. Third line—The linga and the sacellum are both represented.

No. 3, first line—One definite sacellum, and two doubtful ones. Second line—One doubtful sacellum.

No. 4, first leaf, first line—One linga, one sacellum. First leaf, second line—One linga, one sacellum, one emblem of probably phallic import. Second leaf, first line—Two sacelli. Second leaf, second line—One linga, one sacellum.

No. 5, first line—One linga; three certain, one doubtful sacellum; one hand with open fingers. Second line—Two lingas, three definite sacelli, one hand with closed fingers. Third line—One linga; six definite, one doubtful sacellum; one obscene figure. Fourth line—One linga, seven sacelli, one lotus plant. Fifth line—Three lingas, no definite sacelli.

I abstain from offering any interpretation of these facts; but content myself with calling the attention of the Institute to them. It appears from the above that the linga occurs seventeen times and the sacellum thirty-four times.

C. CARTER BLAKE.

### KIMMERIANS AND ATLANTEANS.

*(To the Editor of the Journal of the Anthropological Institute.)*

SIR,—In reply to a note at page 264 of your number for October, allow me to say that I have no opinions as to matters ethnological. What I intended was to state certain facts which I had observed. The following quotations may help to show the popular opinion of the dispositions which belong to personal appearance. The people who seemed most to abound in Paris amongst the Communists, and in London amongst their admirers, were little and dark. Those who were opposed to them were long and fair. An old saw has it thus:

"Long and lazy,  
Little and loud,  
Fair and foolish,  
Black and proud."

Verse xxxi, page 71, Kennedy's MS., 1785, Advocate's Library, is less complimentary to the "Atlanteans," if they be the people meant. The black heads belonged to six brothers of *Clann Chuilgeadan*,

of Wicks, who had been slain with fifteen other personages of Irish and Scandinavian races. These were silvery or golden-haired, fair, rosy, blue-eyed, curly, white-toothed people, who are greatly admired by the poet. He did not admire the others, and he sang thus, according to the manuscript, which I quote :

"Co na sia cinn air dhroch gnò,  
Chi mi dhiot an taobh mu thuath ;  
S gann an aghaidh chlaon an ruic  
S dubh am fuil a Chonail chruaidh."—(Conal, v. 31).

"What six heads of evil mood  
Do I see from thee on the north side ;  
Scanty foreheads, squinting eyes,  
Black 's their hair, ^ hardy Conal !"

They were slain to avenge the slaughter of Cuchulain, by a long, fair man ; and the long, fair, lazy men got the best of the last great fights in Europe.

I am, Sir, your obedient servant,

J. F. CAMPBELL.

New Club, Edinburgh, November 1, 1871.

A MANUAL OF MEDICAL JURISPRUDENCE FOR INDIA, including the outline of a History of Crime against the Person in India. By NORMAN CHEVERS, M.D. Calcutta : 1870. 861 pp., royal 8vo.

THIS is in reality the third edition of a work which appeared, first of all, as a report upon its subject in an Indian journal, and secondly, as a reprint, by direction of the Government of India, for the purpose of being distributed to the magistrates and judges' offices, and some of the libraries of India. The work is immensely extended and enlarged, and vastly improved. Besides its jurisprudential merits, it was always regarded as a work of great anthropological value, since it throws a flood of light upon the peculiar characters, the habits, and the crimes of the various races of man included among our fellow-subjects in India. A student of the natural history of man can scarcely open a page of this large volume without having his desire for curious and exotic information concerning the human race gratified, and without learning something strange to all our notions of European races. In the inquiry which may be said to have been excited during the last few years, relating to the characteristic peculiarities of the races of India, there are few sources of information so copious and so complete as this valuable manual.

LA RACE PRUSSIENNE. Par A. DE QUATREFAGES. Paris : Hachette and Co. 1871.

THIS small work, by the distinguished author of the "Rapport sur les Progrès de l'Anthropologie en France," first appeared as an article in the *Revue des Deux Mondes*. That its object is political, is evident

from the introductory remark : "Puisse-t-il contribuer à détruire des erreurs et des préjugés qui, après avoir fait de la France ce qu'elle est en ce moment, menacent l'Europe entière d'une nouvelle guerre de trente ans." It is only as a contribution to science, however, that the work of Professor de Quatrefages can be noticed here, and as such it possesses great interest. The idea that the Prussians proper are far from being pure Germans is not new ; and there is undoubtedly much to be said in support of the opinion expressed by our author, that they are essentially Finno-Slave, the German element with a French admixture predominating only in the high classes, and in the middle-classes of certain towns. That, as M. Godron says, the Prussians are Prussians, and neither Germans nor Slaves, is no doubt true, in the same sense as the English are English, and neither German, Celtic, Danish, nor Norman. A translation of "La Race Prussienne" has been published by M. Engelhardt, General Secretary of the Society of Northern Antiquaries in the Danish language, and it has been more recently translated into English.

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LES GRECS À TOUTES LES ÉPOQUES. Par UN ANCIEN DIPLOMATE EN ORIENT. E. Dentu. Paris : 1870.

THIS work is one long indictment of the Greek people, who began, says the author, as pirates, and ended as brigands. At the most vaunted period of their history, Greece was in a state of anarchy and of moral degradation, while it exerted a disastrous influence over the Macedonians, the Romans, and the nations subjected to the Eastern empire. The last days of this empire, we are told, presented "the most frightful picture of infamies, of vices, and of crimes that history has ever registered." At the end of the middle ages, the Greeks had deserved chastisements far more terrible than those which they were doomed to suffer. Our author injudiciously follows Fallmerayer in affirming that soon after that epoch the Greeks gradually disappeared from Greece, their place being taken by a Slave element ; although, elsewhere, he says that if the Maina is not the Roman camp Maina, it is the only country inhabited by true descendants of the ancient Greeks. The author of this work is evidently much prejudiced against the people about whom he writes, and therefore his conclusions should be well weighed before being accepted ; but they appear, on the whole, to be justified by the authorities to whom he refers.

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QUADRI DELLA NATURA UMANA, FESTE ED EBBREZZE. Di PAOLO MANTEGAZZA. Two vols., 8vo. Milan : 1871.

THIS curious work, which the Florentine professor of anthropology fondly calls "the Benjamin of his family," offers at once amusement to the general reader, and instruction to the man of science. The scientific portion of the work is devoted in great measure to the study of those substances which man in all countries uses as nervous stimulants, or, as the author prefers to call them, *alimenti nervosi*. Three families of these bodies are recognised—the alcoholic, the alkaloidal, and the

aromatic stimulants, each of the two first-named families being subdivided into two tribes. Each of the substances comprised under these several heads receives in turn full discussion; its history, preparation, uses, chemical composition, and physiological effects being carefully studied. There are also some curious tables contrasting the good and evil effects of the several stimulants, a body of useful statistical information, and some valuable bibliographical notices. Professor Mantegazza's style is essentially popular, and the work is enlivened by numerous anecdotes and scraps of poetry. The student of anthropology will read with much interest the introductory chapter, which is really a reproduction of Mantegazza's opening address to his first course of lectures on anthropology delivered at Florence in 1870. In this essay, the Professor defines the science of anthropology, traces its history and antecedents, and points out the method to be pursued in its study.

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ORGANIC PHILOSOPHY. Vol. III. Outlines of Biology. Body, Soul, Mind, Spirit. By HUGH DOHERTY, M.D. London: Trübner and Co. 1871.

THIS is the third of a series of five volumes, in which the author intends to develop his system of organic philosophy. Those already published treat of Epicosmology, the three kingdoms of terrestrial nature, and Ontology, eternal forces, laws, and principles. The plan pursued by Dr. Doherty in the present volume is to trace the parallels and analogies which he supposes, and no doubt rightly, to exist between psychological and physiological phenomena. We much fear, however, that the author's style will prevent many persons from judging for themselves whether or not he has been successful. It must be said for Dr. Doherty that, at least, he is *original*, in the sense of holding opinions not accepted by others. We have an instance of this in his acceptance of the ancient doctrine of the pre-existence of the human "soul." Incarnation, indeed, occupies a very important position in Dr. Doherty's biological system, as may be seen from the statement that "embryogenesis is the act of the incarnative soul, which forms its own body by associating the atoms of substance prepared in the egg, to form organic cells and fibres, tissues and organs, within the complex unit, in accordance with the progenetic type from which the egg was first derived." A system which is founded on an idea so purely hypothetical can hardly be called scientific. The following curious account of a phenomenon, recorded as having been actually observed by the author, is worth preserving. The living body of a woman at Batavia, a small village near Buffalo, in North America, was "taken possession of by an invisible spirit, which gave the features a totally different caste of general form and expression, and spoke in the voice of a man, utterly unlike that of the woman possessed, and in a language unknown to all present (with the exception of a few words known to some), the invisible spirit representing itself to have been formerly an Indian inhabitant of that part of the country."

Whether this was an actual case of "possession," or whether the phenomenon—the reality of which can hardly be doubted, seeing that several other persons also were so afflicted—is capable of another explanation, we shall not try to determine.

C. S. W.

SUR LA DÉFORMATION TOULOUSAINE DU CRÂNE. Par M. PAUL BROCA.  
8vo. Paris: 1872.

THE peculiar abnormality here described has almost escaped the notice of previous authors on the artificial deformation of the skull. It was mentioned by M. Gosse, who described and figured the three pieces of the head-dress—the *serre-tête*, the *béguin*, and the *bandeau*, which, resting on the nape of the neck, depress (from above to beneath, and from the front backward) not only the bregmatic fontanel, but also the anterior third of the sagittal suture, and the greatest part of the squama of the frontal bone. From this results a peculiar cephalic conformation, which is recognisable at the first glance. M. Broca had many times occasion to observe this Toulousaine deformation amongst the sick in the hospitals; and each time before he inquired of the patients he was able to announce, without error, that they were born in the départements of Aude, or in the Haute Garonne. The autopsy of an old woman from Toulouse, aged seventy-four, indicated that the calvaria was firmly attached to the dura mater: the osseous tissue was neither rarefied nor condensed, nor thick, nor thin; it appeared entirely normal. The pia-mater and the brain did not present any lesion. The cerebral substance, with the pia-mater, weighed only 1,079 grammes; the cranial capacity was 1,198 cubic centimètres. We must call attention to M. Broca's plan for ascertaining the relations of the coronal and lambdoid sutures to the convolutions immediately subjacent to them. The occipital fissure almost always corresponds in a rather exact manner to the lambdoid suture; whilst the fissure of Rolando in the human brain is always situated well behind the coronal suture. The conclusions of Gratiolet are thus proved to be not perfectly correct.

Turning to the skull, the *norma verticalis* of this old woman shows an entirely unusual aspect, as the lower border of the orbit is in advance of the superciliary arches by more than one centimètre. M. Broca's figure perhaps best shows how this curious phenomenon is produced by the recession of the frontal bones.

In the town of Toulouse deformations of the skull have become at the present day rather rare amongst individuals aged less than forty years, but they are frequent in the neighbouring country; and several generations will probably pass away before this last vestige of the manners of the ancient Tectosages shall have entirely disappeared. It may be objected to some conclusions which might be derived from the too literal exaggeration of the theory of Drs. Gosse and Broca, that in many religious orders of the Roman Catholic Church the *serre-tête*, the *béguin*, and the *bandeau* are worn often from extreme in-

fancy, and although they are bound tightly and are extremely painful at first, no deformation of the skull has occurred in my experience.

C. C. B.

M. DE QUATREFAGES has in preparation a large work on "General Craniology," in which he is assisted by the energetic young secretary to Dr. Broca, Dr. Hamy. Examples will be figured from the Paris museums, and from M. de Quatrefages' private collection. The atlas will comprise a hundred quarto plates, and the text will make a thick volume of the same size. It is, of course, premature to say when this vast work will be completed.

CHINESE SEALS FOUND IN IRELAND.—"I saw in the *Phoenix* a question regarding Mr. Getty's book on Chinese seals found in Ireland. I met with the book in Shanghai about twenty years ago, and, by a little search in the shops of Shanghai, soon obtained a collection of the same seals identical with the figures in Mr. Getty's work, bearing the same inscription, and having in some cases the monkey on them, and in other cases the prized handles, as well as some with other figures not in the book. I soon found that these seals had no great antiquity, being about two hundred years old for the most ancient, while others were more modern. Having occasion to go to Dublin some years ago, I took some of the seals with me, and, in conversation with Mr. Edward Chittam, of the Royal Irish Academy, asked him about the seals, and if he could give any reason why they had been found so often in Ireland, when he gave me the following account. Some years ago, a nobleman—I think the late Duke of Northumberland—was anxious to find out the history of these seals, and asked Mr. Chittam to offer a reward of from one to three or four guineas for every seal that might be brought to him. One or two seals were sent to him, for which he paid the offered price; but he could get no history of them. At last a respectable woman brought one or two seals, and offered them for the reward, which was paid her. She then said she thought she could get others, and she was told to do so, and that she should be paid as before. After she had thus received several guineas, Mr. Chittam said, 'Now that you have been well paid, what is the story of these seals?' Her reply was that an ancestor of hers, an Irishman, was in the China trade about a century ago, and he was in the habit of bringing home a quantity of China ware for friends, to whom he said that the shopkeepers from whom he had made his purchases gave him many of the seals, to which he had taken a fancy, and that he used constantly to give them away to friends in Ireland, and that they were carried about in all directions, being curious and interesting little things. The woman said that what she had been paid for were

the remains of the large quantities formerly brought by her ancestor. Mr. Chittam said that this was the true account of the diffusion of the seals through many parts of Ireland. I was also told that the accounts given of the finding of the seals in many places of undisturbed sepulture of great antiquity are simply untrue, and will not bear investigation. Such I believe to be the story of the seals. — W. LOCKHART, M.D."

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